



**US Army Corps
of Engineers**
Construction Engineering
Research Laboratories

**USACERL Technical Report 98/29
January 1998**

Update of MRPM Architectural Systems

by

Prameela V. Reddy, Orange S. Marshall, Jr., and Keith A. Miller

Maintenance costs for life-cycle cost estimates for new construction are currently estimated from the Maintenance Resource Prediction Model (MRPM) databases developed by the U.S. Army Construction Engineering Research Laboratories. These databases were developed more than 10 years ago; many new materials have entered the marketplace and others have disappeared over that period of time. Data to update the architectural systems of the MRPM database were developed. The data updates tasks and materials for the

MRPM database's roofing systems, exterior closure systems, and interior construction systems. In addition to the material and task update, cost data was developed for the new and modified systems. Several tasks currently in the MRPM database were identified for deletion. These deletions are necessary because the materials for the tasks are either no longer commercially available or contain hazardous materials and are being phased out of the U.S. market. The existing MRPM database is updated using this new data.

19980202 020

DTIC QUALITY INSPECTED 3

The contents of this report are not to be used for advertising, publication, or promotional purposes. Citation of trade names does not constitute an official endorsement or approval of the use of such commercial products. The findings of this report are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

DESTROY THIS REPORT WHEN IT IS NO LONGER NEEDED

DO NOT RETURN IT TO THE ORIGINATOR

USER EVALUATION OF REPORT

REFERENCE: USACERL Technical Report 98/29, *Update of MRPM Architectural Systems*

Please take a few minutes to answer the questions below, tear out this sheet, and return it to USACERL. As user of this report, your customer comments will provide USACERL with information essential for improving future reports.

1. Does this report satisfy a need? (Comment on purpose, related project, or other area of interest for which report will be used.)

2. How, specifically, is the report being used? (Information source, design data or procedure, management procedure, source of ideas, etc.)

3. Has the information in this report led to any quantitative savings as far as manhours/contract dollars saved, operating costs avoided, efficiencies achieved, etc.? If so, please elaborate.

4. What is your evaluation of this report in the following areas?

a. Presentation: _____

b. Completeness: _____

c. Easy to Understand: _____

d. Easy to Implement: _____

e. Adequate Reference Material: _____

f. Relates to Area of Interest: _____

g. Did the report meet your expectations? _____

h. Does the report raise unanswered questions? _____

i. General Comments. (Indicate what you think should be changed to make this report and future reports of this type more responsive to your needs, more usable, improve readability, etc.)

5. If you would like to be contacted by the personnel who prepared this report to raise specific questions or discuss the topic, please fill in the following information.

Name: _____

Telephone Number: _____

Organization Address: _____

6. Please mail the completed form to:

Department of the Army
CONSTRUCTION ENGINEERING RESEARCH LABORATORIES
ATTN: CECER-TR-I
P.O. Box 9005
Champaign, IL 61826-9005

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave Blank)		2. REPORT DATE January 1998		3. REPORT TYPE AND DATES COVERED Final	
4. TITLE AND SUBTITLE Update of MRPM Architectural Systems				5. FUNDING NUMBERS Reimbursable Order No. GU7/IP7	
6. AUTHOR(S) Prameela V. Reddy, Orange S. Marshall, Jr., and Keith A. Miller					
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Construction Engineering Research Laboratories (USACERL) P.O. Box 9005 Champaign, IL 61826-9005				8. PERFORMING ORGANIZATION REPORT NUMBER TR 98/29	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Engineering and Support Center, Huntsville ATTN: CEHND-ED-ES 4820 University Square Huntsville, AL 35816-1822				10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES Copies are available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.					
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.				12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) Maintenance costs for life-cycle cost estimates for new construction are currently estimated from the Maintenance Resource Prediction Model (MRPM) databases developed by the U.S. Army Construction Engineering Research Laboratories. These databases were developed more than 10 years ago; many new materials have entered the marketplace and others have disappeared over that period of time. Data to update the architectural systems of the MRPM database were developed. The data updates tasks and materials for the MRPM database's roofing systems, exterior closure systems, and interior construction systems. In addition to the material and task update, cost data was developed for the new and modified systems. Several tasks currently in the MRPM database were identified for deletion. These deletions are necessary because the materials for the tasks are either no longer commercially available or contain hazardous materials and are being phased out of the U.S. market. The existing MRPM database is updated using this new data.					
14. SUBJECT TERMS life cycle costs cost analysis facilities data bases maintenance and repair Maintenance Resource Predictive model (MRPM)				15. NUMBER OF PAGES 208	
				16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified		20. LIMITATION OF ABSTRACT SAR	

Foreword

This study was conducted for the U.S. Army Engineer and Support Center, Huntsville (CEHND) under Reimbursable Work Units GU7/IP7, "Architectural Systems Update." The technical monitor was Terry L. Patton, CEHND-ED-ES.

The work was performed by the Materials Science and Technology Division (FL-M) of the Facilities Technology Laboratory (FL), and the Business Processes Division (PL-B) of the Planning and Management Laboratory (PL) of the U.S. Army Construction Engineering Research Laboratories (USACERL). The USACERL Principal Investigator was Orange S. Marshall, Jr. (FL-M) and the associate Investigator was Prameela V. Reddy. Keith A. Miller was a student contractor assisting in the study. Dr. Ilker R. Adiguzel is Chief, CECER-FL-M, and Dr. Moonja P. Kim is Chief, CECER-PL-B. The USACERL technical editor was Gloria Wienke, Technical Information Team.

COL James A. Walter is the Commander of USACERL, and Dr. Michael J. O'Connor is Director.

Contents

Foreword	2
1 Introduction	5
Background.....	5
Objective	5
Approach.....	6
Scope.....	6
Mode of Technology Transfer	6
2 MRPM Database Structure.....	7
3 Roofing System Update	13
Roof Covering.....	13
Roof Openings.....	22
4 Exterior Closure Update.....	25
Exterior Finishes	25
Exterior Windows.....	28
Exterior Doors.....	31
5 Interior Construction Update.....	37
Interior Partitions - Fixed.....	37
Interior Partitions - Movable.....	39
Interior Doors	40
Interior Ornaments.....	43
Interior Stairs.....	44
Interior Hardware	45
Floor Finishes	46
6 Summary and Recommendations	48
Summary.....	48
Recommendations.....	48
References	49
Appendix A: Additions to MRPM Task Database: Roofing	51

Appendix B: Additions to MRPM Task Database: Exterior Closing 113

Appendix C: Additions to MRPM Task Database: Interior Construction 173

Distribution

1 Introduction

Background

Building maintenance cost estimates are needed during planning, design, and operation of Army facilities. Along with construction and operation costs, maintenance costs are an important component in the overall life-cycle cost estimating process. Life-cycle costs are used to evaluate alternative ways of meeting requirements during the planning phase of a project. During design, the life-cycle costs of systems, subsystems, and components are used to select a "least cost" solution or to assess the economic impact of alternative solutions. During the operation phase of a facility, maintenance and repair cost estimates are needed to help program sufficient funding so that Army facilities can remain in good condition.

Maintenance costs are currently estimated from the Maintenance Resource Prediction Model (MRPM) databases developed by the U.S. Army Construction Engineering Research Laboratories (USACERL). MRPM databases help planners prepare DD Form 1391 documentation. They also help designers select components and maintenance personnel estimate required resources. One of these databases contains information on maintenance tasks and estimated costs for building components. In addition to being a valuable source for maintenance staff, this database is also being used by designers when they select materials. Since the development of this database, several technologies have changed; new components have come into market and need to be reflected in the MRPM database. This document summarizes the changes to the MRPM database for architectural systems.

Objective

The objective of this project is to update the MRPM database to include current architectural technologies and transfer the updated database to the U.S. Army Engineering and Support Center, Huntsville Division.

Approach

The update of the MRPM database was accomplished through the following tasks:

TASK 1 - Develop Task List: USACERL performed a comprehensive literature search and a survey of vendors, trade organizations, and research organizations to identify required additions to and deletions from the current database. This work included assessing current architectural technologies.

TASK 2 - Develop Task Labor and Material Resource Requirements: USACERL developed task labor and resource requirements for materials and procedures identified in TASK 1 and updated the existing data to reflect current (1997) costs and processes. Obsolete materials and tasks were identified and deleted.

TASK 3 - Update MRPM Database: USACERL updated the existing MRPM task database (Dbase compatible file) to include additional tasks and cost data and modified existing data to reflect changes identified in TASK 1 and TASK 2.

Scope

This report addresses only the architectural systems portion of the MRPM database update. In this report, maintenance means all work required to keep a facility in good operating condition; it includes all maintenance, repair, and replacement of components required over the life of a facility.

Mode of Technology Transfer

The updated architectural systems portion of the MRPM database will be transferred to the U.S. Army Engineering and Support Center, Huntsville Division, for their use in supporting the life-cycle cost estimating process.

2 MRPM Database Structure

Building information is subdivided into systems, subsystems, and components in the MRPM database, following the UNIFORMAT. Systems requiring little maintenance, such as foundations and superstructure, are excluded. Site-related maintenance is also excluded. Systems included in the MRPM database under the architectural category are: roofing, exterior closure, interior construction, and interior finishes. Engineering systems such as electrical, HVAC, and plumbing are part of this database under different categories. Major architectural subsystems included in original MRPM database are:

Roofing

- Roof covering

Exterior closure

- Exterior finishes
- Exterior doors
- Exterior windows
- Exterior porches
- Exterior ornaments
- Exterior stairs
- Exterior hardware

Interior construction

- Partitions - fixed
- Partitions - movable
- Interior doors
- Interior windows
- Fireplaces
- Interior ornaments
- Interior stairs
- Interior hardware

Interior finishes

- Wall finishes
- Floor finishes
- Ceiling finishes

In the update, Interior Finishes have been included in the Interior Construction subsystem. The categories listed above are subdivided into subsystems and components. All maintenance tasks that occur during the life of each component are defined. Labor, material, and equipment resource requirements and their associated costs are entered into the database. The frequency of task occurrence is also included. A seven-digit code is assigned to each task to uniquely identify that task, interfacing it with other cost estimating systems such as Computer Assisted Cost Estimating System (CACES).

Users should be careful when using this data for maintenance resource prediction. The data is only applicable to predict the resource requirements for building maintenance only. Resource requirements for operation of buildings is not included, nor is site maintenance. The resource requirement prediction is not applicable to facilities other than buildings. Also, it applies to only routine maintenance to keep the building components in good condition. Building renovation, conversion for other use, and resource requirements due to natural disasters are not part of this prediction model. All these other costs need to be estimated and added to this MRPM estimate to get a total budget estimate.

The database update followed the existing data structure as much as possible. New data was added using UNIFORMAT structure. All new CACES numbers are unique. See Tables 1, 2, and 3 for the updated tree structure for the roofing, exterior closure, and interior construction subsystems, respectively.

Table 1. MRPM update tree structure listing with CACES numbers for roofing systems.

CACES No.	System/Subsystem/Component
0300000	Roofing
0310000	Roofing
0311000	Roof covering
0311100	Built-up roofing
0311110	Cold-applied roofing
0311200	Single ply roofing
0311210	Modified bitumen roofing
0311220	Thermosetting
0311230	Elastomeric Roofing
0311300	Steep roof-shingles
0311310	Aluminum shingles
0311320	Fiber cement shingles
0311330	Slate shingles
0311340	Asphalt shingles
0311350	Steel shingles
0311360	Wood shingles
0311400	Steep roof-tiles
0311410	Aluminum tiles
0311420	Clay tiles
0311430	Concrete tiles
0311500	Steep roof-metal
0311510	Copper roofing
0311520	Lead roofing
0311530	Stainless steel roofing
0311540	Zinc roofing
0311600	Steep roof-misc
0311610	Roll roofing
0311620	Fiberglass rigid-steep roof
0311630	Concrete, sealed panel, steep roof
0311640	Corrugated aluminum panels
0311700	Flat panel roofing
0311710	Concrete, sealed panel roofing
0311720	Concrete, sealed pour-in-place
0311730	Fiberglass, rigid roof
0311800	Gutters and Leaders
0311810	Aluminum gutters and leaders
0311820	Copper gutters and leaders
0311830	Galv.steel gutters and leaders
0311840	Plastic gutters and leaders
0311850	Wooden gutters and leaders
0312000	Roof openings
0312100	Skylights
0312110	Semi-circular skyroof
0312120	Pyramidal skyroof
0312130	Grid-type skyroof
0312140	Ridge-unit skyroof

CACES No.	System/Subsystem/Component
0312150	Dome skylight
0312200	Hatches
0312210	Small roof hatch
0312220	Large roof hatch

Table 2. MRPM update tree structure listing with CACES numbers for exterior closure.

CACES NO.	System/Subsystem/Component
0400000	Exterior closure
0410000	Exterior walls
0415000	Exterior finishes
0415P00	Stone panels (heavy)
0415P10	1st floor
0415P20	2nd floor
0415P30	3rd floor
0415T00	Stone panels (veneer)
0415Y10	1st floor
0415Y20	2nd floor
0415Y30	3rd floor
0420000	Exterior doors
0424000	Special doors
0424710	Revolving door
0424810	Steel access door
0424610	Hangar door
0424410	Aluminum transom
0424420	Steel transom
0424430	Wood transom
0424440	Plastic transom
0424510	Aluminum sidelight
0424520	Steel sidelight
0424530	Wood sidelight
0424540	Plastic sidelight
0426000	Screen/storm doors
0426310	Wooden storm door
0430000	Exterior windows
0431000	Operable windows
0431A10	Triple pane aluminum window – 1st floor
0431A20	Triple pane aluminum window – 2nd floor
0431A30	Triple pane aluminum window – 3rd floor
0431B10	Triple pane plastic window – 1st floor
0431B20	Triple pane plastic window – 2nd floor
0431B30	Triple pane plastic window – 3rd floor
0431C10	Triple pane steel window – 1st floor
0431C20	Triple pane steel window – 2nd floor
0431C30	Triple pane steel window – 3rd floor
0431D10	Triple pane wood window – 1st floor
0431D20	Triple pane wood window – 2nd floor
0431D30	Triple pane wood window – 3rd floor
0434000	Window cov. Special ext.
0434A10	Plastic storm window – 1st floor
0434A20	Plastic storm window – 2nd floor
0434A30	Plastic storm window – 3rd floor

CACES NO.	System/Subsystem/Component
0432000	Fixed window
0432A10	Triple pane aluminum window – 1st floor
0432A20	Triple pane aluminum window – 2nd floor
0432A30	Triple pane aluminum window – 3rd floor
0432B10	Triple pane plastic window – 1st floor
0432B20	Triple pane plastic window – 2nd floor
0432B30	Triple pane plastic window – 3rd floor
0432C10	Triple pane steel window – 1st floor
0432C20	Triple pane steel window – 2nd floor
0432C30	Triple pane steel window – 3rd floor
0432D10	Triple pane wood window – 1st floor
0432D20	Triple pane wood window – 2nd floor
0432D30	Triple pane wood window – 3rd floor

Table 3. MRPM update tree structure listing with CACES numbers for interior construction.

CACES NO.	System/Subsystem/Component
0511000	Drywall
0511100	Wood stud interior partition
0511200	Metal stud interior partition
0513000	Specialty fixed partitions
0513100	Toilet partition
0513200	Shower compartment
0520000	Interior partitions-movable
0521000	Movable metal partitions
0521200	Wire mesh partition
0522000	Movable fabric partitions
0522200	Folding accordion partition
0522300	Hospital cubicle
0530000	Interior doors
0531000	Metal doors
0531150	Steel (painted) fire door
0533000	Wood doors
0533130	Wood pocket door
0533240	Wood fire door (painted)
0534000	Specialty doors
0534340	Shower & Tub door
0534350	Steel fire-rated access door
0560000	Interior ornaments
0561000	Interior trim
0561210	Metal corner guard
0561220	Metal wall guard
0562000	Ornamental structure
0562100	Tapered wood column
0562110	Decorative wooden beam
0570000	Interior stairs
0571000	Railings
0571110	Wooden baluster
0571130	Wooden newel
0580000	Interior hardware
0587100	Metal kick plate
0588100	Wall bumper door stop

CACES NO.	System/Subsystem/Component
0589100	Floor check
0600000	Interior finishes
0620000	Flooring & floor finishes
0626000	Metal floor finishes
0626210	Lightweight metal grating
0622000	Masonry & tile
0622500	Slate flooring
0629000	Special surfaces
0629110	Carpet tile

Problems Identified in This Data Structure

The data element "class" in the task database tells the user if it is an expensive task or routine task. When the class is 0, the task is routine; when it is 1, the task is expensive. Most of the time a Class 1 task is replacement of the component. There is a problem with this structure. When a component such as a door is replaced, the task is classified as 1. The painting or finishing of the replaced door is a separate task. If life-cycle costs of that component include only replacement, it is not accurate, since finishing that door has to be part of the cost. The two tasks cannot be combined into one since they require different data elements. Special care needs to be taken to use this data for life-cycle cost estimation.

The life-cycle costs of floor finish, wall finish, and roof covering are not independent of the respective floor construction, wall construction, and roof construction. Life-cycle cost estimations based solely on finishes may not be accurate since they are part of a system which also needs to be considered during the design phase. With special attention to these details, this data will be a very valuable resource for decision support.

3 Roofing System Update

The roofing system update has two major subsystems: Roof Coverings and Roof Openings. The new subsystem "Roof Openings" includes skylights and hatches. Gutters and downspouts are added to the roof covering category. Modifications and additions to the existing Roofing MRPM database are discussed in this section. Appendix A lists these modifications and additions. The list does not include unchanged data. The costs are updated to 1997 costs.

Roof Covering

Membrane (Low-Slope) Roofing

Whereas a steep roof has inherent ease in shedding water, a roof that is virtually flat has inherent trouble in doing so. A flat roof is versatile, able to fit any configuration of building plan, but in order to shed water and keep the building watertight, it has a special need for a complex system of components. As a result, many things can go wrong over time, and therefore, regular maintenance procedures are essential.

In membrane roofing, the major occurrences of repair are related to punctures in the membrane. Holes not only invite leakage into the building, but moisture infiltration of any kind can seriously damage the structural integrity of the roof assembly. Areas that are not given sufficient flashing and areas where seams are not properly adhered are just as hazardous as a hole in the membrane, so periodic inspections are necessary to inventory any pressing needs in those instances as well.

Database Additions

Component: Cold-Applied Roofing

System: Roofing

Subsystem: Roof covering

Specific type addressed in MRPM:

spunbond poly. fabric, 2.10 oz/sq yd, 36" wide, 10.8 Sq/roll

The current database contains a component called "Built-Up Roofing," which is a very common type of low-slope roofing installed in multiple membrane layers, using hot tar to adhere the layers to the roof. "Cold-Applied Roofing" uses the same principle of applying multiple layers upon each other, but uses a cold tar to adhere the layers.

Although the crew size for installing a Cold-Applied Roof is different than that used for installing a Built-Up Roof, the maintenance tasks are identical. Therefore, the updated database will transpose inspection and repair task data from "Built-Up Roofing" to "Cold-Applied Roofing," but will obtain from R.S. Means the data for any subtask directly involved with membrane replacement or recovering. All task frequencies, meanwhile, are identical to those for "Built-Up Roofing."

Component: Elastomeric Roofing

System: Roofing

Subsystem: Roof covering

Specific type addressed in MRPM:

EPDM, 45 mils, 0.28 p.s.f., partially adhered

Whereas the current database includes a component similar to the new "Cold-Applied Roofing," it does not contain any component similar to the new "Elastomeric Roofing," which is a general term for any single-ply stretchy membrane. The most common variety, the Ethylene Propylene Diene Monomer (EPDM, or "rubber roof") was chosen to represent "Elastomeric Roofing" in the updated MRPM database. Since the current database has no category from which we can translate EPDM data, assumptions had to be made (such as for the kinds of maintenance tasks that would be appropriate). Roofing experts and recent USACERL technical reports were consulted to clearly define frequencies of repairs and labor hours for tasks.

Specifically, the technical reports for EPDM roofing provide exacting calculations for any given area of damage. The problem, though, is that the units of labor hours given in the reports cannot be directly translated into the MRPM database. The technical report can provide sharper accuracy in that it gives specific data applicable to the area in need of repair, but the drawback is that one must first ascertain the roof's actual damaged area in order to use that data. However, as a prediction resource, the MRPM assumes that 2% of any given roof will be in need of repair every 1.00 years, so one need know only the total area of the roof in question in order to immediately predict its annual repair costs. The

data taken from the roofing reports was multiplied by 2% (0.02) to become compatible with current MRPM data.

The updated database operates under the assumption that the most common type of repair on an EPDM roof is that which is defined in the USACERL roofing reports as HL H1, which is described as a "high severity hole." Also, "Minor Membrane Replacement" is defined as HL H2, which is just as severe in terms of damage, but also includes fastener replacements. Flashing repairs are defined as BF H5, a type of high-severity base flashing repair.

Database Modifications and Deletions

No data elements were identified to modify or delete for this type of roofing.

Steep Roofing

Although steep roofs can by their very nature shed water efficiently, they are still subject to certain failures and inadequacies. For example, metal roofs that are not provided with an allowance for thermal expansion and contraction are doomed to complete failure within 1 to 2 years. Asphalt shingles that are nailed "too high" can be uplifted during a moderate wind storm. Also, wooden shakes that were stored improperly before installation are particularly prone to premature deterioration.

The existing database includes a wide range of Steep Roofing components, but it is not complete. Namely, "Shingle Roofing," "Tile Roofing," and "Metal Roofing" are listed as separate components. These components require more specification as there are many types of shingles, tile, and metal, with differing maintenance needs and installation procedures. In particular, the existing database does not differentiate between asphalt strip shingles and wooden shakes/shingles, which not only have different maintenance needs, but are also installed differently.

In general, labor hours for maintenance tasks were not altered as new roofing materials were added to the database. Instead, relevant subtasks and their labor hours were taken from the existing database and applied to new material components, whenever possible. For instance, the component "Slate" in the existing MRPM database denotes shakes made out of slate, whose maintenance needs and installation procedures happen to be very similar to those of wooden shakes. Consequently, labor hour data could be directly transferred from "Slate Roofing" to the new component "Wood Shingle Roofing."

In all cases of newly added roofing components, task frequencies for certain repair work was determined by finding each material elsewhere in the existing database (in similar, exterior applications) and translating the standard life span of the material (material duration) into Task Frequency. In the case of Aluminum Shingle Roofing, the frequency for the task "Total Roof Replacement" was determined by finding Aluminum Siding as a component of Exterior Closure (located in Section 0400000 of the database). Also, some expert judgment was involved in determining task frequency, as has always been the case with MRPM research.

Database Additions

Component: Aluminum Shingle Roofing

System: Roofing

Subsystem: Roof covering

Specific type addressed in MRPM:

mill finish alum. shingles, .020" thick

Subtask and Labor hour data for Aluminum Shingle Roofing are exactly the same as given in the existing MRPM database under the component "Slate," with the added task (and corresponding data) of "Debris Removal By Hand & Visual Inspection" taken from "Asphalt Shingle Roofing" (formerly "Shingles"). Only Material Costs need updating.

Component: Fiber Cement Shingle Roofing

System: Roofing

Subsystem: Roof covering

Specific type addressed in MRPM:

fiber cement shakes, 9.35" x 16", 500 lb/Sq

Subtask and Labor hour data for Fiber Cement Shingle Roofing are exactly the same as given in the existing MRPM database under the component "Slate," with the added task (and corresponding data) of "Debris Removal By Hand & Visual Inspection" taken from "Asphalt Shingle Roofing" (formerly "Shingles"). Only Material Costs need updating.

Component: Steel Shingle Roofing

System: Roofing

Subsystem: Roof covering

Specific type addressed in MRPM:

Galvanized steel shingles, 26 gauge

Subtask and Labor hour data for Steel Shingle Roofing are exactly the same as given in the existing MRPM database under the component "Slate," with the added task (and corresponding data) of "Debris Removal By Hand & Visual Inspection" taken from "Asphalt Shingle Roofing" (formerly "Shingles"). Only Material Costs need updating.

Component: Wood Shingle Roofing

System: Roofing

Subsystem: Roof covering

Specific type addressed in MRPM:

16" No. 1 red cedar shingles, 5" exposure

Subtask and Labor hour data for Wooden Shingle Roofing are exactly the same as given in the existing MRPM database under the component "Slate," with the added task (and corresponding data) of "Debris Removal By Hand & Visual Inspection" taken from "Asphalt Shingle Roofing" (formerly "Shingles"). Only Material Costs need updating.

Component: Aluminum Tile Roofing

System: Roofing

Subsystem: Roof covering

Specific type addressed in MRPM:

aluminum mission tiles, .032" thick, w/accessories

Subtask and Labor hour data for Aluminum Tile Roofing are exactly the same as given in the existing MRPM database under the component "Tiles." Only Material Costs need updating.

Component: Concrete Tile Roofing

System: Roofing

Subsystem: Roof covering

Specific type addressed in MRPM:

concrete tiles (earthtone colors), w/accessories, nailed to deck

Subtask and Labor hour data for Concrete Tile Roofing are exactly the same as given in the existing MRPM database under the component "Tiles." Only Material Costs need updating.

Component: Copper Sheet Metal Roofing

System: Roofing

Subsystem: Roof covering

Specific type addressed in MRPM:

18 oz copper roofing, 145 lb/Sq, batten seam

Subtask and Labor hour data for Copper Sheet Metal Roofing are exactly the same as given in the existing MRPM database under the component "Metal." Only Material Costs need updating.

Component: Lead Sheet Metal Roofing

System: Roofing

Subsystem: Roof covering

Specific type addressed in MRPM:

lead roofing, 5 lb/sq ft, batten seam

Subtask and Labor hour data for Lead Sheet Metal Roofing are exactly the same as given in the existing MRPM database under the component "Metal." Only Material Costs need updating.

Component: Stainless Steel Sheet Metal Roofing

System: Roofing

Subsystem: Roof covering

Specific type addressed in MRPM:

28 gauge stainless steel roofing, type 304, batten seam

Subtask and Labor hour data for Stainless Steel Sheet Metal Roofing are exactly the same as given in the existing MRPM database under the component "Metal." Only Material Costs need updating.

Component: Zinc Sheet Metal Roofing

System: Roofing

Subsystem: Roof covering

Specific type addressed in MRPM:

.027" thick zinc/copper alloy roofing, batten seam

Subtask and Labor hour data for Stainless Steel Sheet Metal Roofing are exactly the same as given in the existing MRPM database under the component "Metal." Only Material Costs need updating.

Database Modifications and Deletions

Component: Clay Tile Roofing

System: Roofing

Subsystem: Roof covering

Specific type addressed in MRPM:

clay Spanish tiles (red), 171 pcs/Sq

The component formerly known as "Tiles" is now known as "Clay Tile Roofing."

Component: Asphalt Shingle Roofing

System: Roofing

Subsystem: Roof covering

Specific type addressed in MRPM:

Standard strip shingles, class C, 260-300 lbs/Sq, 4 bundles/Sq

The component formerly known as "Shingles" is now known as "Asphalt Shingle Roofing."

Component: Slate Shingle Roofing

System: Roofing

Subsystem: Roof covering

Specific type addressed in MRPM:

Vermont slate, unfading, green, mottled gray

The component formerly known as "Slate" is now known as "Slate Shingle Roofing."

The roofing component "Cement Asbestos" has been deleted because this material is obsolete. The component "Metal" has been replaced with specific metal types.

Gutters and Leaders

There are no references to Gutters and Leaders in the existing MRPM database. Since Gutters and Leaders are part of roof covering in UNIFORMAT, and since there are maintenance tasks associated with gutters and leaders, they have been added to the database. Gutters and Leaders apply only to steep roof drainage. The drainage systems found in low-slope roof assemblies are more of a function of plumbing rather than roofing, and so should be included in the Plumbing division of the MRPM database.

It should not be overlooked that the unit of measure for Roof Drainage systems is lineal feet. Also, it should be noted that the subtasks and their accompanying labor hours were primarily derived not from Engineered Performance Standards (EPS, as none are available), but from R.S. Means data and from expert judgment. Task Frequency data was assumed to be a function of material type, consistent with matching materials in various other outdoor applications.

Derivation of Data

Debris Removal by Hand and Visual Inspection

These labor hours are based upon the data for any given roof already represented in the database, though inspection of the gutters and leaders equates to only 10% of the inspection for the entire roof area. Therefore, the labor hours of inspection of any given steep roof were multiplied by 10% (0.10) to arrive at the labor hours for drainage system inspection.

Washing/Cleaning Out

These labor hours are based upon the assumption that one person can use a typical garden hose (with a high-pressure nozzle) to clean out 10 lineal feet in 15 seconds.

Minor Corrosion Removal/Refinishing

These labor hours are translated from a similar task found in other parts of the current MRPM database; namely Metal Roofing (for the common subtask of "Wire Brush Surface to Remove Oxide") and the exterior closure component Aluminum Siding (for the common subtask of "Refinish Surface"). In both instances, a gutter's or downspout's surface area is assumed to be equal to 1 square foot per lineal foot of span. Therefore, the data can be directly translated to the lineal feet units of Roof Drainage systems.

Partial Replacement/Readjustment

These labor hours are based upon data found in Means' "Facilities Construction Cost Data," wherein certain demolition and installation tasks are included. As the MRPM is a prediction resource based upon the size of the roof and not upon individual components (like gutters and downspouts), the data from Means has to be converted into the MRPM convention, which means multiplying this data by 5% (0.05), as the drainage system corresponds to approximately 5% of the entire roof area. Furthermore, it is assumed that an average of 10% of the roof drainage system needs to be replaced every 5.00 years, which means multiplying

that figure by another 10% (0.10) to arrive at the labor hours for both "Remove" and "Replace Defective Section" tasks.

Total Drainage System Replacement

Similar to the above task, these labor hours, are derived from Means data, though this data need only be multiplied by 5% (0.05) to represent the ratio of drainage system to roof area, making the data compatible with MRPM conditions.

Component: Aluminum Gutters and Downspouts

System: Roofing

Subsystem: Roof Covering

Specific type addressed in MRPM:

3" x 4" aluminum downspout, enameled, .024" thick

5" box-type alum. gutter, enameled, .032" thick

Component: Copper Gutters and Downspouts

System: Roofing

Subsystem: Roof covering

Specific type addressed in MRPM:

4" dia. round copper downspout, 16 oz

4" wide half-round copper gutter, 16 oz

Component: Galvanized Steel Gutters and Downspouts

System: Roofing

Subsystem: Roof covering

Specific type addressed in MRPM:

4" dia. round corrugated steel (galvanized) downspout, 28 ga.

5" wide half-round galvanized steel gutter, enameled, 28 ga.

Component: Plastic Gutters and Downspouts

System: Roofing

Subsystem: Roof covering

Specific type addressed in MRPM:

3" x 4" corrugated, galvanized steel downspout, epoxy painted, 24 ga. (Means lists no plastic or wooden downspouts, so galvanized steel and copper downspouts are assumed to be typical in these cases.)

5" wide vinyl, O.G. gutter

Component: Wooden Gutters and Downspouts

System: Roofing

Subsystem: Roof covering

Specific type addressed in MRPM:

3" x 4" corrugated copper gutter, 16 oz. (Means lists no plastic or wooden downspouts, so galvanized steel and copper downspouts are assumed to be typical in these cases.)

4" x 5" clear treated wooden gutter

Roof Openings

All maintenance and repair task data for Roof Hatches and Skylights were derived primarily from the existing MRPM database. Means was the source of the replacement task data. The assumption is that roof hatches are similar to a double-pane aluminum operable window that is placed on the roof. Skylights likewise are similar to a roof-bound double-pane aluminum fixed (inoperable) window. Therefore, all Roof Hatches and Skylights data are analogous to the data covering double pane, aluminum frame windows (operable and inoperable, respectively) in the existing MRPM.

Component: Skylight

System: Roofing

Subsystem: Roof openings

Specific type addressed in MRPM:

Plastic roof dome, flush or curb mounted, 20 sq ft to 30 sq ft
double

Component: Semi-Circular Skyroof

System: Roofing

Subsystem: Roof openings

Specific type addressed in MRPM:

Continuous vaulted, to 8' wide, dbl glazed

The "Set-up ladder" data is taken from the "Roofing" system of MRPM. Repair data is taken from Inoperable Double Pane Aluminum Frame Window (1st floor data), and then multiplied by $\frac{1}{2}\pi$. Material quantities were defined by $\frac{1}{2}\pi$. Installation labor hours are taken from Means.

Component: Pyramidal Skyroof

System: Roofing

Subsystem: Roof openings

Specific type addressed in MRPM:

Self-supporting, to 30' clear opening, square or circular, single glazed (avg.)

The "Set-up ladder" data is taken from the "Roofing" system of MRPM. Repair data/material quantities are the same as for Semi-circular Skyroof (with consideration given to single-glazing in this component). Installation labor hours are taken from Means.

Component: Grid-type Skyroof

System: Roofing

Subsystem: Roof openings

Specific type addressed in MRPM:

4' to 10' modules, single glass glazed (interpolated avg.)

The "Set-up ladder" data is taken from the "Roofing" system of MRPM. Repair data/material quantities are the same as for Semi-circular Skyroof (with consideration given to single-glazing in this component). Installation labor hours are taken from Means.

Component: Ridge-unit Skyroof

System: Roofing

Subsystem: Roof openings

Specific type addressed in MRPM:

continuous, to 8' wide, double glazed

The amount of glass is equal to two times the horizontal square footage of the skyroof (equilateral triangular section assumed). Therefore, labor hours for Repairs are equal to twice that for Inoperable Double Pane Aluminum Frame Exterior Windows. Installation labor hours are taken from Means.

Database Additions

Component: Small roof hatch

System: Roofing

Subsystem: Roof openings

Specific type addressed in MRPM:

With curb, 1" fiberglass insulation, 2'-6" x 3'-0"

Component: Large roof hatch

System: Roofing

Subsystem: Roof openings

Specific type addressed in MRPM:

With curb, 1" fiberglass insulation, 2'-6" x 8'-0"

4 Exterior Closure Update

The exterior closure system consists of exterior walls, doors, windows, and finishes for these components. This chapter discusses modifications and additions to the existing Exterior Closure MRPM database. Appendix B lists these modifications and additions. The list does not include unchanged data. The costs are updated to 1997 costs.

Exterior Finishes

Only two new components were added to this section, and one existing component, "Stone Exterior Wall Finish," was modified. Specifically, "Stone" has become the more accurate "Rough Stone (Random Sizes)," with two derivatives added as new components to the database: "Heavy Stone Panels" and "Veneer Stone Panels."

"Rough Stone" is commonly referred to as "Flagstone" or "Fieldstone," with installation procedures more similar to brick facing than other types of stonework. Since the sizes of the individual stones are irregular, installation can easily become more labor intensive than conventional brick masonry.

"Heavy Stone Panels" refers chiefly to Indiana limestone blocks, which are greater than 4" in thickness and can be cut to any desired dimension. For estimating purposes, panels having an area 5'-0 x 14'-0 with a sugarcube textured finish are considered typical for construction.

"Veneer Stone Panels" are thin, non-bearing components of the building enclosure, most typically used in curtain wall assemblies. Although marble is certainly possible in such an application, brown and pink granite is assumed as the norm. Means considers installation of marble panels to be as labor intensive as installation of granite panels, so in terms of those labor hours and task durations, the updated MRPM can apply to marble as well as granite.

Elsewhere, it was found that certain exterior finish components have a life duration different than as listed in the existing MRPM. For example, bricks are presently listed as needing full replacement every 500 years. Likewise, many other exterior finishes are described as lasting 500 years also — a figure which had to be looked at closely. Upon further review, it was determined that these values are not accurate. In reality, brick companies will guarantee their products generally for only 100 to 150 years. Other products, such as Indiana limestone or reinforced concrete, may also last 500 years under ideal conditions, but as exterior finish components, they are particularly vulnerable to the elements. Any mistake made in the design and/or construction of an enclosure system compounds the effects from the elements (particularly water infiltration), which will significantly shorten the life of an exterior finish. In some well-documented cases, the exterior finish materials have needed to be replaced after only 20 years or less. Furthermore, other components like adobe and stucco are listed as having a life expectancy of 300 years, also a curiously large number.

Task Development

The existing MRPM contains virtually all components represented in Means, so minimal alteration is necessary. However, for those components either added or modified, Means was used as the standard for determining labor hours and material costs. In the case of "Rough Stone" (or "Stone" in the existing MRPM), labor hours for demolition and replacement were directly gathered from Means, though all other labor data (e.g., "move up/down ladder") will remain the same as before. In the cases of both new Stone Panel components, the same principles will apply.

Database Additions

Component: Stone Panels (heavy)

System: Exterior closure

Subsystem: Exterior Finishes

Specific type addressed in MRPM:

Sugarcube limestone, textured finish, 5" thick, 5'x14' panels

Labor hours for all tasks (except demolition/installation) remain identical to data for existing MRPM "Stone."

Component: Stone Panels (veneer)

System: Exterior closure

Subsystem: Exterior Finishes

Specific type addressed in MRPM:

Granite veneer, polished face, $\frac{3}{4}$ " to $1\frac{1}{2}$ " thick, medium price (pink, brown, etc.)

Labor hours for all tasks (except demolition/installation) remain identical to data for existing MRPM "Stone."

Database Modifications and Deletions

The component "Asbestos Siding" will be deleted from the MRPM database because its use is no longer feasible.

The component referred to in the existing MRPM database as "Stone" will now be specified "Rough Stone (random sizes)." All data for labor hours will remain as is.

Component: Rough Stone (random sizes)

System: Exterior closure

Subsystem: Exterior Finishes

Specific type addressed in MRPM:

Split face sandstone or brownstone, random sizes

Labor hours for all tasks (except demolition/installation) remain identical to data for existing MRPM "Stone."

Those components whose life expectancies have been amended in this update (data germane only to "replace component" and "finish replaced component" tasks) include:

- 0415100 Adobe
- 0415200 Clay Brick
- 0415300 Clay Brick (waterproofed/painted)
- 0415400 Concrete Brick
- 0415500 Concrete Brick (waterproofed/painted)
- 0415600 Structural Clay Tile
- 0415700 Structural Clay Tile (waterproofed/painted)
- 0415800 Concrete Block
- 0415900 Concrete Block (waterproofed/painted)

- 0415A00 Concrete (waterproofed/painted)
- 0415B00 Rough Stone (the component formerly known as "Stone")
- 0415C00 Stucco
- 0415D00 Terra Cotta
- 0415M00 Glass Block

Exterior Windows

Windows with triple-glazing have been added to the database. Since all existing MRPM window frame types can provide for triple-glazing, there is no need to either add or exempt any frame type. Also, Plastic Frame Storm Windows were added to the database.

Certain types of glass (e.g., laminated glass, tempered glass, etc.) have not been specified in the MRPM database, as the list of possible combinations of glass-to-frame is incredibly extensive. Instead, a typical glass type is already assumed, having no significant bearing on installation or maintenance labor hours. The Unit Price Book should be consulted to determine material costs germane to specific glass types.

Task Development

The existing MRPM includes data for single-glazing and double-glazing in both the "Operable Windows" and "Fixed Windows" subsystems. With certain tasks, like "broken glass replacement," labor resources for repairs had been listed in the original MRPM as increasing uniformly as the second pane of glass was introduced. Therefore, labor hours were increased again (in the established proportion) as a third pane was added in this update. Other tasks, such as painting the frame, remain unchanged regardless of the number of panes housed within.

Labor resources for "Plastic Storm Windows" are equivalent to those found in "Wooden Storm Windows," minus the "painting" tasks (plastic-frame windows and doors have the distinct maintenance advantage of requiring no paint to achieve longevity). This method is consistent with the data pertaining to other plastic-clad, wood-core exterior components in the MRPM.

Database Additions

Component: Plastic Frame Storm Window

System: Exterior closure

Subsystem: Exterior windows

Specific type addressed in MRPM:

not specified in Means

The material cost assumption is based on existing MRPM data for Plastic Frame Inoperable Windows (reduced for Storm Window application).

Component: Triple Pane Aluminum Frame Window

System: Exterior closure

Subsystem: Exterior windows

Specific type addressed in MRPM:

not specified in Means

The labor hours and material costs are prorated for the extra pane.

Component: Triple Pane Steel Frame Window

System: Exterior closure

Subsystem: Exterior windows

Specific type addressed in MRPM:

not specified in Means

The labor hours and material costs are prorated for the extra pane.

Component: Triple Pane Wood Frame Window

System: Exterior closure

Subsystem: Exterior windows

Specific type addressed in MRPM:

not specified in Means

The labor hours and material costs are prorated for the extra pane.

Component: Triple Pane Plastic Frame (Wood Core) Window

System: Exterior closure

Subsystem: Exterior windows

Specific type addressed in MRPM:

not specified in Means

The labor hours and material costs are prorated for the extra pane.

Component: Triple Pane Aluminum Frame Window

System: Exterior closure

Subsystem: Exterior windows (fixed)

Specific type addressed in MRPM:

not specified in Means

The labor hours and material costs are prorated for the extra pane.

Component: Triple Pane Steel Frame Window

System: Exterior closure

Subsystem: Exterior windows (fixed)

Specific type addressed in MRPM:

not specified in Means

The labor hours and material costs are prorated for the extra pane.

Component: Triple Pane Wood Frame Window

System: Exterior closure

Subsystem: Exterior windows (fixed)

Specific type addressed in MRPM:

not specified in Means

The labor hours and material costs are prorated for the extra pane.

Component: Triple Pane Plastic Frame (wood core) Window

System: Exterior closure

Subsystem: Exterior windows (fixed)

Specific type addressed in MRPM:

not specified in Means

The labor hours and material costs are prorated for the extra pane.

Exterior Doors

Whereas Means (and Master Format) lists each specific door individually, the MRPM displays a general list of all types of doors, grouping doors together based on similar maintenance characteristics. As a result, the MRPM's list of doors is much shorter than Means' listing, so that the MRPM's "Painted Solid Core Wood (W/Glass) Door" includes all doors that fit that general description (assuming a 21 sq ft area per door). This category makes the MRPM more user-friendly without sacrificing prediction accuracy.

However, there are some omissions by the existing MRPM—namely revolving doors, steel access doors, hangar doors, and wooden storm doors. Of course, there are several types of each, but only one commonly used type was chosen to represent the entire group.

Also, the elements "Transoms" and "Sidelights" have been introduced to the MRPM. Although they are in essence fixed windows, they are by definition associated with doorways and will therefore be included in the "Exterior Doors" subsystem. Each transom is assumed to have an area of 18 sq ft (3'-0 x 6'-0); similarly, though commonly grouped in pairs, each sidelight is treated as a separate window in this database, each having an area of 10.5 sq ft (7'-0 x 1'-6).

Task Development

The Wooden Storm Door was construed to be very similar to the other storm doors in terms of repair task descriptions. The repair work required for a wood storm door is the same that is required for an aluminum storm door, though task frequencies and task durations could be different. The existing MRPM showed a consistent, proportional increase in labor hours for repairs to wooden windows and doors in relation to aluminum windows and doors. That proportion was then used to extrapolate the labor hours required for the new component "Wooden Storm Door."

Also, the new "Hangar Door" was assumed to behave similarly to the component "Steel Double Roll-Up Door," so the same data is applicable to both kinds of doors.

Steel access doors are only 2'-0 x 3'-0 in size, which means they are small versions of the steel frame door already in the database, requiring maintenance labor resources in proportion to its size in relation to a full-size door.

Revolving doors are sufficiently different from all other doors in the existing database. In this case, it was necessary to assume a repair task labor rate based upon proportions indicated in other components in the MRPM (as EPS for revolving doors could not be found).

Being almost all glass, a revolving door will have a real need for periodic replacement of broken glass, a common task found in "Exterior Fixed Windows." The MRPM assumes a typical window size of 12 sq ft, so the labor resources required to replace a 21 to 24 sq ft revolving door pane is nearly twice those of a window pane. The great increase in bulk of a revolving door pane results in much more difficult labor, specifically by a factor of 21/12—the ratio of the relative square footages. It is assumed that one of the four glass panes on a well-used revolving door will need replacement every 1.00 years, so the material (glass) quantity is listed as $\frac{1}{4}$ of the total package (0.250 units) in the database.

In the case of repairs to parts other than glazing, an estimation was made that (since all work done on revolving doors is rather labor intensive) repair labor hours equal $\frac{1}{4}$ of the labor hours to install a new door. It is assumed that this labor intensive repair work would be done every other year on average. Also, it should be noted that these doors are extremely expensive, and that the material costs listed are correct and are not typographical errors.

Transoms and sidelites are listed under the four framing types—Aluminum, Steel, Wood, and Plastic. Although no reference was made to individual transoms or sidelites in Means publications, task data could be easily derived by treating these elements as simple fixed exterior double-pane windows of different sizes and with corresponding framing materials. Just as revolving door panes are almost twice the size of typical windows and thus require nearly double the labor resources for maintenance, so the difference in area of transoms and sidelites proportionally reduces the labor resources required for maintenance. Material costs were based upon differences in size, too, in relation to their framing material.

Database Additions

Component: Wooden Storm Door

System: Exterior Closure

Subsystem: Exterior Doors

Specific type addressed in MRPM:

exterior, combination storm and screen; pine, 7'-1 x 3'-0 wide

Repair/Replacement tasks are identical to those found in Plastic Storm Door. Refinish tasks are identical to those found in Solid Core (W/Glass) Painted Exterior Door.

Component: Revolving Door

System: Exterior Closure

Subsystem: Exterior Doors

Specific type addressed in MRPM:

Aluminum, 6'-6 to 7'-0 dia., 6'-10 to 7'-0 high (avg.)

Broken glass replacement labor hours are four times the amount for Double Pane Aluminum Frame Ext. Window. Each of the four glazed panels is assumed to need repair separately. Repair tasks are 25% of the labor hours for total door replacement (from Means). Remove and Replace labor hours are taken from Means.

Component: Metal Access Door

System: Exterior Closure

Subsystem: Exterior Doors

Specific type addressed in MRPM:

Standard door, metal, 24" x 36"

Repair labor hours are 1/3 of the labor hours for installation (from Means). Broken Glass Replacement is prorated for size against Double Pane Aluminum Exterior Window. Replacement labor hours are taken from Means.

Component: Hangar Door

System: Exterior Closure

Subsystem: Exterior Doors

Specific type addressed in MRPM:

Bi-fold, overhead., 20 psf wind load, incl. elec. oper., without sheeting, 16' high x 60'

Repair labor hours are the same as Steel Frame Couble (Painted) Roll-up Door. Finish/Refinish labor hours are the same as Steel Frame Couble (Painted) Roll-up Door. Replacement labor hours are from from Means.

Component: Aluminum Frame Sidelite

System: Exterior Closure

Subsystem: Exterior Doors

Specific type addressed in MRPM:

none specified in Means

The labor hours are adjusted against Double Pane Aluminum Frame (Inoperable) Exterior Windows. The material costs are identical to the same windows.

Component: Steel Frame Sidelite

System: Exterior Closure

Subsystem: Exterior Doors

Specific type addressed in MRPM:

none specified in Means

The labor hours are adjusted against Double Pane Steel Frame (Inoperable) Exterior Windows. The material costs are identical to the same windows.

Component: Wooden Frame Sidelite

System: Exterior Closure

Subsystem: Exterior Doors

Specific type addressed in MRPM:

none specified in Means

The labor hours are adjusted against Double Pane Wooden Frame (Inoperable) Exterior Windows. The material costs are identical to the same windows.

Component: Plastic Frame (Wood Core) Sidelite

System: Exterior Closure

Subsystem: Exterior Doors

Specific type addressed in MRPM:

none specified in Means

The labor hours are adjusted against Double Pane Plastic Frame (Inoperable) Exterior Windows. The material costs are identical to the same windows.

Component: Aluminum Frame Transom

System: Exterior Closure

Subsystem: Exterior Doors

Specific type addressed in MRPM:

none specified in Means

The labor hours are adjusted against Double Pane Aluminum Frame (Inoperable) Exterior Windows. The material costs are identical to the same windows.

Component: Steel Frame Transom

System: Exterior Closure

Subsystem: Exterior Doors

Specific type addressed in MRPM:

none specified in Means

The labor hours are adjusted against Double Pane Steel Frame (Inoperable) Exterior Windows. The material costs are identical to the same windows.

Component: Wooden Frame Transom

System: Exterior Closure

Subsystem: Exterior Doors

Specific type addressed in MRPM:

none specified in Means

The labor hours are adjusted against Double Pane Wooden Frame (Inoperable) Exterior Windows. The material costs are identical to the same windows.

Component: Plastic Frame (Wood Core) Transom

System: Exterior Closure

Subsystem: Exterior Doors

Specific type addressed in MRPM:

none specified in Means

The labor hours are adjusted against Double Pane Plastic Frame (Inoperable) Exterior Windows. The material costs are identical to the same windows.

Database Modifications and Deletions

Like with exterior finishes, certain exterior doors do not in practical use last as long as the MRPM indicates. In many cases, the MRPM lists exterior doors as requiring replacement much less frequently than industry specifications can substantiate. The specific types of doors in question are:

- 0421100 Aluminum (plain and anodized) Doors
- 0421200 Steel (painted) Doors
- 0423000 Wood Doors

No materials or components were considered for deletion from the database in this update.

5 Interior Construction Update

The interior closure system consists of interior walls and partitions, doors and windows, ornaments, stairs, floors, cabinetwork, and the finishes for them. This chapter discusses modifications and additions to the existing MRPM Interior Construction database. Appendix C lists these modifications and additions. The list does not include unchanged data. The costs are updated to 1997 costs.

Interior Partitions - Fixed

The existing database covers three different types of interior fixed partition construction: Drywall construction, Concrete, and Masonry. The existing MRPM is devoid of any maintenance information involving these systems, as the nature of these components is construction, not maintenance per se (these components' repair needs are detailed in the "Wall Finishes" system). However, there is a need to include some information concerning new construction within an existing building in which drywall systems are employed (e.g., remodeling). The goals and needs for remodeling are by definition virtually impossible to predict during the design phase, though one can speculate that some partition addition/demolition could occur someday. Therefore, even though predictability is elusive, some information applicable to remodeling has been introduced to this database.

It should be noted that remodeling is but one means by which walls are torn down and/or built up. Although there may be no need for actual remodeling, there may be a need for wall demolition or addition for other reasons. Furthermore, there is a repair task given to each type of drywall system that covers any unforeseen partition damage in general, say, from termites.

Two types of drywall are now specified: "Wood Stud" and "Metal Stud." Also, a new subsystem is added to "Interior Partitions" pertaining to certain special items as toilet partitions and shower compartments.

Task Development

Any new material for inclusion within the MRPM was found through R. S. Means resources. Likewise, any labor hour data for replacement (installation and demolition, if available) were obtained through Means as well. However, since Means provides no details for repair work, existing MRPM data was applied to new materials whenever appropriate.

For instance, in the case of the Wood Stud Interior Partition, a "Minor Repairs" task is assigned. No detail is given, as "repairs" can entail many different things; rather, a general quantity of 2% of the labor hours for installation is provided to predict at most any type of wood stud partition repair work required every 1.00 years. In other instances, where specific repair work is designated (and where appropriate), task and subtask descriptions were taken from the existing database, and the corresponding labor hours were assigned in their established proportions.

Specifically, in the case of Toilet Partitions, a similar component was found in the MRPM, Steel Painted Interior Doors, from which certain data were extrapolated, such as painting tasks. Since Toilet Partitions are composed of painted steel (according to Means), painting tasks could be considered similar. Therefore, as the MRPM designates 0.266150 labor hours to paint the 46 square feet of surface area of a door, the labor hours required to paint one square foot of Toilet Partitions will equal the per-square-foot quotient from Steel Interior Doors.

Database Additions

Component: Wood Stud Interior Partition

System: Fixed Interior Partitions

Subsystem: Drywall Partitions

Specific type addressed in MRPM:

Water resistant, 2x4 studs 16" o.c., w/ ½" gypsum drywall
(taped both sides)

Component: Metal Stud Interior Partition

System: Fixed Interior Partitions

Subsystem: Drywall Partitions

Specific type addressed in MRPM:

Water resistant, NLB, 25 ga, 16" o.c., 3-5/8" wide, w/ ½" gypsum
drywall (taped both sides)

Component: Toilet Partition

System: Fixed Interior Partitions

Subsystem: Special Purpose Partitions

Specific type addressed in MRPM:

Cubicles, floor mounted, painted metal

Component: Shower Compartment

System: Fixed Interior Partitions

Subsystem: Special Purpose Partitions

Specific type addressed in MRPM:

Floor mounted, no plumbing, cabinet with door, fiberglass

Interior Partitions - Movable

There are no new subsystems in this system, but the components "Wire Mesh Partitions," "Folding Accordion Partitions," and "Hospital Cubicles" will be added to existing subsystems. The latter two will be classified as "Fabric Partitions", whereas the former one is a "Metal Partition."

As movable partitions, these components are not independent elements. They require some kind of support system or track, typically ceiling-mounted. Therefore, each component's replacement task includes labor hours not only for the partition member itself, but also for the assembly it is mounted on.

Task Development

Existing data were applied to new materials where possible. For replacement task labor hours, data from R. S. Means were used. Demolition labor hours for the Folding Accordion Partition and the Wire Mesh Partition are assumed to be equal to the demolition labor hours given in R. S. Means for "movable metal partitions," as these components are of similar weight and bulkiness. Demolition labor hours for Hospital Partitions are related to installation labor hours in equal proportion to demolition/installation labor hours of the Folding Accordion Partition.

In each of the three cases, the "Repair" task was named after the task from a certain similar component in the existing MRPM, "Movable Fabric Partition" (not specified beyond this in MRPM). Labor hours for repairs of the new "Fabric Partition" are taken from the existing MRPM as well, but the "Wire Mesh Partition" repair labor hours are assumed to equal 3% of its installation labor hours.

Database Additions

Component: Wire Mesh Interior Partition

System: Movable Interior Partitions

Subsystem: Metal Partitions

Specific type addressed in MRPM:

Woven wire partition wall panels, 4'-0 wide, 7' high

Component: Folding Accordion Interior Partition

System: Movable Interior Partitions

Subsystem: Fabric Partitions

Specific type addressed in MRPM:

Commercial, 1.75 psf, 8' maximum height

Component: Hospital Cubicle

System: Movable Interior Partitions

Subsystem: Fabric Partitions

Specific type addressed in MRPM:

Curtains, nylon mesh tops, fire resistant, 11 oz per lin yd, polyester oxford cloth, 9' ceil. ht.

Interior Doors

There is no need to add any new subsystems to this system, as all five existing divisions are adequate. However, two new fire-rated doors of steel and wood are introduced. The assumption is that with these doors, no glass is included, although certain glazing in fire doors is allowed by building codes. Another assumption with these doors is that they will be painted, thus creating a

painting maintenance requirement. Also new to the database are Wooden Pocket Doors, Shower & Tub Doors, and Steel Fire-Rated Access Doors.

Task Development

Labor hours for demolition and replacement of fire-rated doors are taken directly from Means. Labor hours for other tasks, such as repair and painting, are taken from similar components in the existing MRPM.

Pocket doors are, by design, particularly labor intensive in terms of repair work (since, in order to get to the door and its track, the enclosing drywall needs to be removed first), and so the labor hours for repair are similar to those for installation.

Shower doors vary greatly in size and materials. For this database, a certain type of door (sliding, w/tempered glass) is chosen based on its prominence of use, and because this type relates well to many of the others in terms of maintenance and repair needs. The task "broken glass replacement" will not apply, as such an occurrence would require the entire door to be replaced. Repair tasks are assumed to be identical to those belonging to "fully glazed interior sliding doors," although the labor hours will differ according to size.

Steel access doors are small, about 2' x 3', serving special needs in hospitals, mostly. As stainless steel items, they have no need for painting. Repair labor hours, meanwhile, are derived from steel door repairs found in the MRPM, with alterations for size differences.

Database Additions

Component: Steel (Painted) Fire Door

System: Interior Doors

Subsystem: Metal Doors

Specific type addressed in MRPM:

Steel, flush, "B" label, 90 minute, full panel, 20 ga, 3'-0" x 7'-0"

Component: Wood (Painted) Fire Door

System: Interior Doors

Subsystem: Wood Doors

Specific type addressed in MRPM:

Mineral core, 3 ply stile, "B" label, 3'-0" x 7'-0"

Component: Wood Pocket Door

System: Interior Doors

Subsystem: Wood Doors

Specific type addressed in MRPM:

DOOR: Pre-hung interior passage door, hollow core, 1-3/8" x
6'-8" x 3'-0" wide

FRAME: Wood, interior pocket door frame

Component: Shower & Tub Door

System: Interior Doors

Subsystem: Special Service Doors

Specific type addressed in MRPM:

Sliding, tempered glass, 48" opening

Component: Steel (Fire-Rated) Access Door

System: Interior Doors

Subsystem: Special Service Doors

Specific type addressed in MRPM:

Fire rated door w/ lock, stainless steel, 24" x 36"

Database Modifications and Deletions

Like with Exterior Doors, the MRPM indicates unrealistic replacement periods for Interior Doors. They were shown in the MRPM to last longer than specified by industry standards. In particular, the doors whose frequency data were amended are:

- 0531100 Steel (painted) Doors
- 0531200 Steel (unpainted) Doors
- 0531300 Aluminum (plain & anodized) Doors

It was determined that the frequency data for Wooden Interior Doors are already accurate and need no amendment.

Interior Ornaments

The existing database makes no provision for anything other than "trim," so more diversity will be given to the MRPM through the introduction of decorative beams and columns. Meanwhile, certain types of wall protection will be added to the trim subsystem. Also, an interior wall finish, "Wainscot," will be reclassified as an interior ornament, as it is not a wall finish but a manner of trim.

Task Development

All replacement labor hours are taken from Means. In the cases of columns and beams, Means specifies a variety of each, organized by their dimensions. Means' labor hours, therefore, are easily determined by the lineal foot. However, in regards to painting, the MRPM labor hours were determined by assuming a cross-sectional dimension, then assigning a square footage per lineal foot based on that cross-sectional dimension. The painting labor hours for these surface areas are equivalent to those for any interior wooden door or other wooden surface, and so were then conformed to the "lineal feet" unit of measure used by Means.

The wall protection components, Metal Wallguards and Metal Corner Guards, require no painting tasks. Labor hours for repair were determined to equal 2% of the replacement-task labor hours, whereas demolition labor hours were assumed to equal 50% of the replacement-task labor hours.

Database Additions

Component: Metal Corner Guard

System: Interior Ornaments

Subsystem: Interior Trim

Specific type addressed in MRPM:

Steel angle w/anchors, 3"x 3"x 5/16" angles, 6.1 #/l.f.

Component: Metal Wallguard

System: Interior Ornaments

Subsystem: Interior Trim

Specific type addressed in MRPM:

Handrail/bumper, vinyl cover, aluminum retainer, bracket mounted, flat rail, 5-1/2"

Component: Tapered Wooden Column

System: Interior Ornaments

Subsystem: Decorative Structure

Specific type addressed in MRPM:

Hemlock, tapered, T & G, 18" diameter, 20' high

Component: Decorative Beam

System: Interior Ornaments

Subsystem: Decorative Structure

Specific type addressed in MRPM:

Rough sawn cedar, non-load bearing, 4" x 8"

Interior Stairs

The current MRPM includes data for stair railings, but has left out the vertical structure for the railing (for those stair railing systems not connected to walls). Specifically, the interior balustrade, which consists of the newel at each end and the closely-spaced balusters in between, has been neglected. As the existing database does provide a large variety of flooring types for steps and risers, there is no need to add any component other than the baluster and the newel.

Task Development

Since balusters and newels have inherently different cross-sectional dimensions, which are also typically different from the hand railings, there is no direct way to assign painting labor hours from the existing database. As in the case of decorative structural ornamentation, the painting labor hours for wooden hand rails in the MRPM (measured in lineal feet) were used to derive labor resources for the elements of different diameters. However, a length was also assumed for both newels and balusters (30" railing height), which facilitates maintenance prediction based on the number of balusters and newels, not the sum of lineal feet of all the members combined.

Repair resources for balusters and newels, meanwhile, are identical to those found under their wooden railing counterpart, again prorated according to size and translated from lineal feet.

Database Additions

Component: Wooden Baluster

System: Interior Stairs

Subsystem: Railings

Specific type addressed in MRPM:

Turned, 30" high, pine (median cost)

Component: Wooden Newel

System: Interior Stairs

Subsystem: Railings

Specific type addressed in MRPM:

Starting/Landing (averaged labor hours), 3-1/4" wide (median cost)

Interior Hardware

All new components here will fall under the newly designated subsystem, "Doors," as no subsystems exist presently. The new components include Kick Plates, Door Stops, and Floor Checks.

Task Development

Task descriptions include general repair and complete replacement; labor hours were derived from Means. The repair task for each component is assumed to take 2% of the time for installation. Demolition labor hours equal 50% of the installation labor hours with each component.

Database Additions

Component: Metal Kick Plate

System: Interior Hardware

Subsystem: Doors

Specific type addressed in MRPM:

6" high, for 3' door, stainless steel

Component: Door Stop
System: Interior Hardware
Subsystem: Doors

Specific type addressed in MRPM:
Wall bumper

Component: Floor Check
System: Interior Hardware
Subsystem: Doors

Specific type addressed in MRPM:
For over 3' wide doors, single acting

Floor Finishes

There are three new components added to this system, each of which is similar to a component in the existing MRPM. With each of these new finishes, painting is disregarded, so maintenance tasks will include only common repairs and periodic replacement.

Also, the subsystem presently named "Synthetic Tile Flooring Finishes" will now be called, more precisely, "Resilient Tile Flooring Finishes." One of the components under it, "Vinyl (Asbestos) Tile Flooring" will be omitted from this database as asbestos is no longer accepted as a building material. In its place, Asphalt Tiles will assume the same exact data all around, from task frequency to subtask labor hours (though material costs will change), so in essence, there is merely a change in component name.

Task Development

Since each new component has a similar counterpart in the existing MRPM, maintenance resources were easily determined. With slate flooring, the regrouting data is taken from Marble Flooring (found to be 2% of the labor hours for new flooring installation). With Carpet Tiles, data was applied from Carpet Flooring, and with Lightweight Metal Grating (which applies to fiberglass grating also, as maintenance resources are very similar), resource data was taken from Metal Grating.

Database Additions

Component: Slate Flooring

System: Interior Flooring Finishes

Subsystem: Masonry & Tile Products

Specific type addressed in MRPM:

Natural cleft, random rectangular, gauged, ½" thick

Component: Carpet Tile

System: Interior Flooring Finishes

Subsystem: Special Surfaces

Specific type addressed in MRPM:

Tufted, 35 oz

Component: Lightweight Metal Grating

System: Interior Flooring Finishes

Subsystem: Metal

Specific type addressed in MRPM:

Fiberglass, reinforced polyester, fire retardant, 1" x 4" grid,
1-½" thick

6 Summary and Recommendations

Summary

Data to update the architectural systems of the MRPM database were developed. The data updates materials and tasks for the MRPM database roofing systems, exterior closure systems and interior construction systems. In addition to the material and task update, cost data was developed for the new and modified systems. Several tasks currently in the MRPM database were identified for deletion. These deletions are necessary because the materials for the tasks are either no longer commercially available or they contain hazardous materials and are being phased out of the U.S. market.

Recommendations

- The changes identified in this study that are incorporated into the MRPM database should be reflected in other construction estimating software such as CACES.
- Since the source data is updated, the data in the building component maintenance and repair database, and the building maintenance and repair data for life-cycle cost analyses also need to be updated to keep them consistent.

For example, the MRPM task database for buildings is the source data for the "building component maintenance and repair database." This is a component resource summary covering the first 25 years of using the task data. This building component maintenance and repair database was used to form a set of 25-year present worth factor tables for use by designers in component selection. The annual component resource values were multiplied by the appropriate present worth factor and added for the 25 years to produce one set of resource values. This information is in "building maintenance and repair data for life-cycle cost analyses" database.

References

Allen, Edward, *Fundamentals of Building Construction—Materials and Methods* (second edition), John Wiley & Sons, Inc., 1990.

Armer, G.S.T., J.L. Clarke, F.K. Garas, *The Life of Structures* (Butterworths, 1989, Cambridge, UK).

Army Regulation (AR) 11-18, *The cost and economic analysis program* (HQDA, 7 May 1990).

Bailey, D.M., D.E. Brotherson, W. Tobiasson, S.D. Foltz, and A. Knehans, *ROOFER: Membrane and Flashing Condition Indexes for Single-Ply Membrane Roofs—Inspection and Distress Manual*, Technical Report FM-93/11/ADA 272573 (USACERL, April 1993).

Engineered Performance Standards: Carpentry Handbook, Technical Bulletin (TB) 420-4, (Departments of the Army, the Navy, and the Air Force Washington, DC, 1982).

Engineered Performance Standards: General Formulas, Technical Bulletin No. 420-3, (HQDA, Washington, DC, 1972).

Engineered Performance Standards: Paint Handbook, Technical Bulletin No. 420-18, (Departments of the Army, the Navy, and the Air Force, Washington, DC, 1984).

Facilities Engineering: Maintenance And Repair of Roofs, Technical Manual TM No. 5-617, (Departments of the Army, the Navy, the Air Force, and the Marine Corps, Washington, DC, 1974).

National Bureau of Standards, Geoffrey Frohnsdorff and Barbara Horner, Editors, *Second International Conference on Durability of Building Materials and Components* (preprints, September 1981).

Neely, E.S., R.D. Neathammer, J.R. Stirn, and R.P. Winkler, *Building Component Maintenance and Repair Database: Architectural Systems*, Special Report P-91/27/ADA 238395 (USACERL, May 1991).

Neely, E.S., R.D. Neathammer, J.R. Stirn, and R.P. Winkler, *Building Maintenance and Repair Data for Life-cycle cost analyses: Architectural Systems*, Special Report P-91/17/ADA 239828 (USACERL, May 1991).

Neely, E.S., R.D. Neathammer, J.R. Stirn, and R.P. Winkler, *Maintenance Resource Prediction in the Facility Life-cycle Process*, Technical Report P-91/10/ADA 236424 (USACERL, May 1991).

Neely, E.S., R.D. Neathammer, J.R. Stirn, and R.P. Winkler, *Maintenance Task Database for Buildings: Architectural Systems*, Special Report P-91/23/ADA 242979 (USACERL, May 1991).

R. S. Means Company, Inc., (Melville J. Mossman, PE, Senior Editor), *Means Facilities Maintenance & Repair Cost Data*, (R. S. Means Co., 1996).

R. S. Means Company, Inc., (Phillip R. Waier, PE, Senior Editor), *Means Repair & Remodeling Cost Data—1997 (18th edition)* (R. S. Means Co., 1996).

R. S. Means Company, Inc., (Phillip R. Waier, PE, Senior Editor), *Means Facilities Construction Cost Data—1996 (11th edition)* (R. S. Means Co., 1995).

R. S. Means Company, Inc., (John H. Ferguson, PE, Senior Editor), *Means Assemblies Cost Data—1996 (21st edition)* (R. S. Means Co., 1995).

Specification 93—Technical Volume EMAP Architecture, Alan Williams, Editor, (EMAP Business Publishing, 1993, London).

Appendix A: Additions to MRPM Task Database: Roofing

Task code: 0311311

Component: Aluminum shingle roofing System: Roofing Subsystem: Roof covering
 Task Description: Debris removal by hand & visual insp. - aluminum shingle roof
 Unit of Measure: Square Foot (SF) Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 2 Task Duration: 0.0004 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Pick up trash/debris & Inspection	0.000500			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000580	0.000174	0.000754
Material Cost \$			
Equipment Hours			0.000377

Task code: 0311312

Component: Aluminum shingle roofing System: Roofing Subsystem: Roof covering
 Task Description: Non-destructive moisture insp. - Alum. Shingle roof
 Unit of Measure: SF Frequency of Occurrence: H: 2.00 A: 3.00 L: 4.00
 Persons per Team: 2 Task Duration: 0.0007 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
On-site inspection of roof membrane	0.001000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001080	0.000324	0.001404
Material Cost \$			
Equipment Hours			0.000702

Task code: 0311313

Component: Aluminum shingle roofing System: Roofing Subsystem: Roof covering
 Task Description: Minor Repairs - Aluminum Shingle roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.75 A: 1.00 L: 1.25
 Persons per Team: 2 Task Duration: 0.0011 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080	Aluminum flashing	0.020	0.92
Removal of adjacent shingles	0.000130			
Removal of damaged metal flashing	0.000002			
Installation of new aluminum flashing	0.000003			
Reinstallation of old aluminum shingles	0.001500			
Cleanup	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001735	0.000521	0.002256
Material Cost \$			0.018400
Equipment Hours			0.001128

Task code: 0311314

Component: Aluminum shingle roofing System: Roofing Subsystem: Roof covering
 Task Description: Minor Shingle Replacement - Aluminum Shingle roof
 Unit of Measure: SF Frequency of Occurrence: H: 14.00 A: 16.00 L: 18.00
 Persons per Team: 2 Task Duration: 0.0010 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Aluminum shingles	0.025	1.46
Remove damaged shingles	0.000164			
Place new shingles to match exist.	0.001143			
Cleanup	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001487	0.000446	0.001933
Material Cost \$			0.036500
Equipment Hours			0.000967

Task code: 0311315

Component: Aluminum shingle roofing System: Roofing Subsystem: Roof covering
 Task Description: Flashing repairs - Aluminum Shingle roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.75 A: 1.00 L: 1.25
 Persons per Team: 2 Task Duration: 0.0001 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Aluminum flashing	0.020	0.92
Remove adjacent shingles	0.000013			
Remove damaged flashing metal	0.000002			
Install and fasten new flashing	0.000003			
Reinstallation - old alum shingles	0.000003			
Cleanup	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000201	0.000060	0.000261
Material Cost \$			0.018400
Equipment Hours			0.000131

Task code: 0311317

Component: Aluminum shingle roofing System: Roofing Subsystem: Roof covering
 Task Description: Total roof replacement - Aluminum Shingle roof
 Unit of Measure: SF Frequency of Occurrence: H: 27.00 A: 30.00 L: 33.00
 Persons per Team: 2 Task Duration: 0.077 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Base felt	1.00	0.0365
Remove existing shingles	0.006580	Aluminum flashing	0.020	0.92
Install new felt	0.002220	Aluminum shingles	1.00	1.46
Install aluminum shingles	0.100000			
Cleanup	0.010000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.118960	0.035688	0.154648
Material Cost \$			1.514900
Equipment Hours			0.077324

Task code: 0311322

Component: Fiber cement shingles System: Roofing Subsystem: Roof covering
 Task Description: Non-destructive moisture insp. - fiber cement shingles
 Unit of Measure: SF Frequency of Occurrence: H: 2.00 A: 3.00 L: 4.00
 Persons per Team: 2 Task Duration: 0.0004 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
On-site inspection of roof membrane	0.000500			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000580	0.000174	0.000754
Material Cost \$			
Equipment Hours			0.000377

Task code: 0311323

Component: Fiber cement shingles System: Roofing Subsystem: Roof covering
 Task Description: Repairs - fiber cement shingles
 Unit of Measure: SF Frequency of Occurrence: H: 0.75 A: 1.00 L: 1.25
 Persons per Team: 2 Task Duration: 0.0011 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080	Aluminum flashing	0.02	0.92
Removal of adjacent shingles	0.000130			
Removal of damaged metal flashing	0.000002			
Installation of new aluminum flashing	0.000003			
Reinstallation of old shingles	0.001500			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001735	0.000521	0.002256
Material Cost \$			0.018400
Equipment Hours			0.001128

Task code: 0311324

Component: Fiber cement shingles System: Roofing Subsystem: Roof covering
 Task Description: Minor shingle replacement - fiber cement shingles
 Unit of Measure: SF Frequency of Occurrence: H: 18.00 A: 20.00 L: 22.00
 Persons per Team: 2 Task Duration: 0.0010 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Fiber cement shakes	0.025	2.74
Remove damaged shingles	0.000164			
Place new shingles to match exist.	0.001143			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001487	0.000446	0.001933
Material Cost \$			0.068500
Equipment Hours			0.000967

Task code: 0311325

Component: Fiber cement shingles System: Roofing Subsystem: Roof covering
 Task Description: Flashing repairs - fiber cement shingle roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 2 Task Duration: 0.0001 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Aluminum flashing	0.020	0.92
Removal of adjacent shingles	0.000013			
Remove damaged flashing metal	0.000002			
Install and fasten new flashing	0.000003			
Reinstallation of old shingles	0.000003			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000201	0.000060	0.000261
Material Cost \$			0.018400
Equipment Hours			0.000131

Task code: 0311327

Component: Fiber cement shingles System: Roofing Subsystem: Roof covering
 Task Description: Total roof replacement - fiber cement shingle roof
 Unit of Measure: SF Frequency of Occurrence: H: 36.00 A: 40.00 L: 44.00
 Persons per Team: 2 Task Duration: 0.036 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Base felt	1.00	0.0365
Remove existing shingles	0.006580	Aluminum flashing	0.02	0.92
Install new felt/valley	0.002220	Fiber cement shakes	1.00	2.74
Install fiber cement shingles	0.036360			
Clean up	0.010000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.055320	0.016596	0.071916
Material Cost \$			2.794900
Equipment Hours			0.035958

Task code: 0311111

Component: Cold applied roofing System: Roofing Subsystem: Roof covering
 Task Description: Debris removal by hand & visual insp.- cold applied roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.40 A: 0.50 L: 0.60
 Persons per Team: 2 Task Duration: 0.0007 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Pick up trash/debris & clean up	0.000500			
Onsite Inspection	0.000500			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001080	0.000324	0.001404
Material Cost \$			
Equipment Hours			0.000702

Task code: 0311112

Component: Cold applied roofing System: Roofing Subsystem: Roof covering
 Task Description: Non-destructive moisture inspection - cold applied roof
 Unit of Measure: SF Frequency of Occurrence: H: 2.00 A: 3.00 L: 4.00
 Persons per Team: 2 Task Duration: 0.0007 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Onsite Inspection of roof membrane	0.001000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001080	0.000324	0.001404
Material Cost \$			
Equipment Hours			0.000702

Task code: 0311113

Component: Cold applied roofing System: Roofing Subsystem: Roof covering
 Task Description: Minor membrane repairs - cold applied roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.75 A: 1.00 L: 1.25
 Persons per Team: 2 Task Duration: 0.0004 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080	Felt/adhesive	0.02	0.4428
Sweep/spud ballast clean	0.000100			
Cross cut incision thru bitumen	0.000323			
Install 2 new plies felt-adhesive	0.000013			
Reinstall ballast in bitumen	0.000078			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000614	0.000275	0.000889
Material Cost \$			0.008856
Equipment Hours			0.000445

Task code: 0311114

Component: Cold applied roofing System: Roofing Subsystem: Roof covering
 Task Description: Minor membrane replacement - cold applied roof
 Unit of Measure: SF Frequency of Occurrence: H: 18.00 A: 20.00 L: 22.00
 Persons per Team: 2 Task Duration: 0.0019 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	2" polystyrene insulation	0.025	0.32
Remove damaged membrane/insul.	0.000360	Sealant	0.025	0.15
Install new insulation	0.000490	4 ply bitum. membrane	0.025	0.47
Install new membrane	0.000847			
Apply adhesives to seams	0.000033			
Clean up	0.001000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.002890	0.000867	0.003757
Material Cost \$			0.023500
Equipment Hours			0.001879

Task code: 0311115

Component: Cold applied roofing System: Roofing Subsystem: Roof covering
 Task Description: Flashing repairs - cold applied roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.75 A: 1.00 L: 1.25
 Persons per Team: 2 Task Duration: 0.0002 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	2-ply membr. flashing	0.020	0.72
Sweep/spud ballast clean	0.000010	Asphalt felt	0.020	0.4
Cut out buckled flashing	0.000093			
Install 2 new plies felt-adhesive	0.000013			
Reinstall ballast in bitumen	0.000008			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000304	0.000091	0.000395
Material Cost \$			0.022400
Equipment Hours			0.000198

Task code: 0311116

Component: Cold applied roofing System: Roofing Subsystem: Roof covering
 Task Description: Place new membrane over existing cold applied roof
 Unit of Measure: SF Frequency of Occurrence: H: 12.00 A: 14.00 L: 16.00
 Persons per Team: 5 Task Duration: 0.004 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	2" polystyrene insulation	1.00	0.32
Sweep/spud ballast to membrane	0.005011	2-ply membrane flashing	0.02	0.72
Tear off damaged membrane/insulation	0.000130	4-ply bitum. membrane	1.00	0.47
Replace insulation	0.000040			
Replace membrane	0.006825			
Reinstall ballast	0.003880			
Clean up	0.001000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.017073	0.005122	0.022195
Material Cost \$			0.804400
Equipment Hours			0.004439

Task code: 0311117

Component: Cold applied roofing System: Roofing Subsystem: Roof covering
 Task Description: Membrane removal & replacement - cold applied roof
 Unit of Measure: SF Frequency of Occurrence: H: 26.00 A: 28.00 L: 30.00
 Persons per Team: 5 Task Duration: 0.005 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	2" polystyrene insulation	1.00	0.320
Sweep/spud ballast to membrane	0.005011	Ballast	1.00	0.005
Tear off existing membrane/insulation	0.000130	4-ply bitum. membrane	1.00	0.470
Replace insulation	0.000040			
Replace membrane	0.008000			
Reinstall ballast	0.003880			
Clean up	0.001000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.018221	0.005466	0.023687
Material Cost \$			0.795000
Equipment Hours			0.004737

Task code: 0311351

Component: Steel shingles System: Roofing Subsystem: Roof covering
 Task Description: Debris removal by hand & visual insp.- steel shingle roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 2 Task Duration: 0.0004 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Pick up trash/debris & inspection	0.000500			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000580	0.000174	0.000754
Material Cost \$			
Equipment Hours			0.000377

Task code: 0311352

Component: Steel shingles System: Roofing Subsystem: Roof covering
 Task Description: Non-destructive moisture insp.- steel shingle roof
 Unit of Measure: SF Frequency of Occurrence: H: 2.00 A: 3.00 L: 4.00
 Persons per Team: 2 Task Duration: 0.0004 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
On-site inspection of roof membrane	0.000500			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000580	0.000174	0.000754
Material Cost \$			
Equipment Hours			0.000377

Task code: 0311353

Component: Steel shingles System: Roofing Subsystem: Roof covering
 Task Description: Minor repairs - steel shingle roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.75 A: 1.00 L: 1.25
 Persons per Team: 2 Task Duration: 0.0011 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080	Copper flashing	0.02	3.18
Removal of adjacent shingles	0.000130			
Removal of damaged metal flashing	0.000002			
Installation of new copper flashing	0.000003			
Reinstallation - old steel shingles	0.001500			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001735	0.000521	0.002256
Material Cost \$			0.063600
Equipment Hours			0.001128

Task code: 0311354

Component: Steel shingles System: Roofing Subsystem: Roof covering
 Task Description: Minor replacement - steel shingle roof
 Unit of Measure: SF Frequency of Occurrence: H: 18.00 A: 20.00 L: 22.00
 Persons per Team: 2 Task Duration: 0.0010 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	26 ga. steel shingles	0.025	1.39
Remove damaged steel shingles	0.000164			
Place new shingles to match exist.	0.001143			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001487	0.000446	0.001933
Material Cost \$			0.034750
Equipment Hours			0.000967

Task code: 0311355

Component: Steel shingles System: Roofing Subsystem: Roof covering
 Task Description: Flashing repairs - steel shingle roof
 Unit of Measure: SF Frequency of Occurrence: H: 9.00 A: 10.00 L: 11.00
 Persons per Team: 2 Task Duration: 0.0001 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	steel flashing	0.02	2.55
Removal of adjacent shingles	0.000013			
Remove damaged flashing metal	0.000002			
Install and fasten new flashing	0.000003			
Reinstallation - old steel shingles	0.000003			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000201	0.000060	0.000261
Material Cost \$			0.051000
Equipment Hours			0.000131

Task code: 0311357

Component: Steel shingles System: Roofing Subsystem: Roof covering
 Task Description: Total roof replacement - steel shingle roof
 Unit of Measure: SF Frequency of Occurrence: H: 63.00 A: 70.00 L: 77.00
 Persons per Team: 2 Task Duration: 0.036 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Base felt	1.00	0.0365
Remove existing shingles	0.006580	Copper flashing	0.02	3.18
Install 15# felt/valley	0.002220	26 ga. steel shingles	1.00	1.39
Install steel shingles	0.036360			
Clean up	0.010000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.055320	0.016596	0.071916
Material Cost \$			1.490100
Equipment Hours			0.035958

Task code: 0311361

Component: Wood shingles System: Roofing Subsystem: Roof covering
 Task Description: Debris removal by hand & visual insp.- wood shingle roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 2 Task Duration: 0.0004 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Pick up trash/debris & inspection	0.000500			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000580	0.000174	0.000754
Material Cost \$			
Equipment Hours			0.000377

Task code: 0311362

Component: Wood shingles System: Roofing Subsystem: Roof covering
 Task Description: Non-destructive moisture insp.- wood shingle roof
 Unit of Measure: SF Frequency of Occurrence: H: 2.00 A: 3.00 L: 4.00
 Persons per Team: 2 Task Duration: 0.0004 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
On-site inspection of roof membrane	0.000500			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000580	0.000174	0.000754
Material Cost \$			
Equipment Hours			0.000377

Task code: 0311363

Component: Wood shingles System: Roofing Subsystem: Roof covering
 Task Description: Minor repairs - wood shingle roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.75 A: 1.00 L: 1.25
 Persons per Team: 2 Task Duration: 0.0011 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080	Aluminum flashing	0.02	0.92
Removal of adjacent shingles	0.000130			
Removal of damaged metal flashing	0.000002			
Installation of new aluminum flashing	0.000003			
Reinstallation - old wooden shingles	0.001500			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001735	0.000521	0.002256
Material Cost \$			0.018400
Equipment Hours			0.001128

Task code: 0311364

Component: Wood shingles System: Roofing Subsystem: Roof covering
 Task Description: Minor replacement - wooden shingle roof
 Unit of Measure: SF Frequency of Occurrence: H: 3.00 A: 4.00 L: 5.00
 Persons per Team: 2 Task Duration: 0.0010 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Wooden shingles	0.025	1.50
Remove damaged wood shingles	0.000164			
Place new shingles to match exist.	0.001143			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001487	0.000446	0.001933
Material Cost \$			0.037500
Equipment Hours			0.000967

Task code: 0311365

Component: Wood shingles System: Roofing Subsystem: Roof covering
 Task Description: Flashing repairs - wooden shingle roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.75 A: 1.00 L: 1.25
 Persons per Team: 2 Task Duration: 0.0001 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Aluminum flashing	0.02	0.92
Removal of adjacent shingles	0.000013			
Remove damaged flashing metal	0.000002			
Install and fasten new flashing	0.000003			
Reinstallation - old wooden shingles	0.000003			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000201	0.000060	0.000261
Material Cost \$			0.018400
Equipment Hours			0.000131

Task code: 0311367

Component: Wood shingles System: Roofing Subsystem: Roof covering
 Task Description: Total roof replacement - wooden shingle roof
 Unit of Measure: SF Frequency of Occurrence: H: 10.00 A: 12.00 L: 14.00
 Persons per Team: 2 Task Duration: 0.033 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	15# Base felt	1.00	0.0365
Remove existing shingles	0.006580	Aluminum flashing	0.02	0.92
Install 15# felt/valley	0.002220	Wood shingles	1.00	1.50
Install wood shingles	0.032000			
Clean up	0.010000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.050960	0.015288	0.066248
Material Cost \$			1.554900
Equipment Hours			0.033124

Task code: 0311411

Component: Aluminum tiles System: Roofing Subsystem: Roof covering
 Task Description: Debris removal by hand & visual insp.- aluminum tile roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 2 Task Duration: 0.0004 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Pick up trash/debris & inspection	0.000500			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000580	0.000174	0.000754
Material Cost \$			
Equipment Hours			0.000377

Task code: 0311412

Component: Aluminum tiles System: Roofing Subsystem: Roof covering
 Task Description: Non-destructive moisture insp.- aluminum tile roof
 Unit of Measure: SF Frequency of Occurrence: H: 2.00 A: 3.00 L: 4.00
 Persons per Team: 2 Task Duration: 0.0007 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
On-site inspection of roof membrane	0.001000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001080	0.000324	0.001404
Material Cost \$			
Equipment Hours			0.000702

Task code: 0311413

Component: Aluminum tiles System: Roofing Subsystem: Roof covering
 Task Description: Minor repairs - aluminum tile roof
 Unit of Measure: SF Frequency of Occurrence: H: 4.55 A: 5.00 L: 5.55
 Persons per Team: 2 Task Duration: 0.0003 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Mastic	0.02	0.15
Removal of existing sealant	0.000310			
Clean joint surfaces	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000490	0.000147	0.000637
Material Cost \$			0.003000
Equipment Hours			0.000319

Task code: 0311414

Component: Aluminum tiles System: Roofing Subsystem: Roof covering
 Task Description: Minor replacement - aluminum tile roof
 Unit of Measure: SF Frequency of Occurrence: H: 3.00 A: 4.00 L: 5.00
 Persons per Team: 2 Task Duration: 0.0015 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Aluminum tiles, mission	0.025	2.95
Remove damaged tiles	0.000130			
Place tiles in position	0.002000			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.002310	0.000693	0.003003
Material Cost \$			0.737500
Equipment Hours			0.001502

Task code: 0311415

Component: Aluminum tiles System: Roofing Subsystem: Roof covering
 Task Description: Flashing repairs - aluminum tile roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.75 A: 1.00 L: 1.25
 Persons per Team: 2 Task Duration: 0.0001 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Aluminum flashing	0.02	0.92
Removal of adjacent tiles	0.000013			
Install and fasten new flashing	0.000002			
Nail strap into place	0.000003			
Reinstall tiles in position	0.000004			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000202	0.000061	0.000263
Material Cost \$			0.018400
Equipment Hours			0.000132

Task code: 0311417

Component: Aluminum tiles System: Roofing Subsystem: Roof covering
 Task Description: Total roof replacement - aluminum tile roof
 Unit of Measure: SF Frequency of Occurrence: H: 27.00 A: 30.00 L: 33.00
 Persons per Team: 2 Task Duration: 0.033 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	15# Base felt	1.00	0.0365
Remove existing tiles	0.006580	Aluminum flashing	0.02	0.92
Install felt/valley	0.002220	Aluminum tiles, mission	1.00	2.95
Install aluminum tiles	0.032000			
Clean up	0.010000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.050960	0.015288	0.066248
Material Cost \$			3.004900
Equipment Hours			0.033124

Task code: 0311431

Component: Concrete tiles System: Roofing Subsystem: Roof covering
 Task Description: Debris removal by hand & visual insp.- concrete tile roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 2 Task Duration: 0.0004 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Pick up trash/debris & inspection	0.000500			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000580	0.000174	0.000754
Material Cost \$			
Equipment Hours			0.000377

Task code: 0311432

Component: Concrete tiles System: Roofing Subsystem: Roof covering
 Task Description: Non-destructive moisture insp.- concrete tile roof
 Unit of Measure: SF Frequency of Occurrence: H: 2.00 A: 3.00 L: 4.00
 Persons per Team: 2 Task Duration: 0.0007 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
On-site inspection of roof membrane	0.001000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001080	0.000324	0.001404
Material Cost \$			
Equipment Hours			0.000702

Task code: 0311433

Component: Concrete tiles System: Roofing Subsystem: Roof covering
 Task Description: Minor repairs - concrete tile roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.75 A: 1.00 L: 1.25
 Persons per Team: 2 Task Duration: 0.0003 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Mastic	0.02	0.15
Removal of existing sealant	0.000310			
Clean joint surfaces	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000490	0.000147	0.000637
Material Cost \$			0.003000
Equipment Hours			0.000319

Task code: 0311434

Component: Concrete tiles System: Roofing Subsystem: Roof covering
 Task Description: Minor replacement - concrete tile roof
 Unit of Measure: SF Frequency of Occurrence: H: 18.00 A: 20.00 L: 22.00
 Persons per Team: 2 Task Duration: 0.0015 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Earthtone concr. tiles	0.25	1.03
Remove damaged tiles	0.000130			
Place tiles in position	0.002000			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.002310	0.000693	0.003003
Material Cost \$			0.257500
Equipment Hours			0.001502

Task code: 0311435

Component: Concrete tiles System: Roofing Subsystem: Roof covering
 Task Description: Flashing repairs - concrete tile roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.75 A: 1.00 L: 1.25
 Persons per Team: 2 Task Duration: 0.0001 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Aluminum flashing	0.02	0.92
Removal of adjacent tiles	0.000013			
Install and fasten new flashing	0.000002			
Nail strap into place	0.000003			
Reinstall tiles in position	0.000004			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000202	0.000061	0.000263
Material Cost \$			0.018400
Equipment Hours			0.000132

Task code: 0311437

Component: Concrete tiles System: Roofing Subsystem: Roof covering
 Task Description: Total roof replacement - concrete tile roof
 Unit of Measure: SF Frequency of Occurrence: H: 63.00 A: 70.00 L: 77.00
 Persons per Team: 2 Task Duration: 0.0508 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	15# Base felt	1.00	0.0365
Remove existing tiles	0.006580	Aluminum flashing	0.02	0.92
Install felt/valley	0.002220	Concrete tiles, earthtone	1.00	1.03
Install concrete tiles	0.059260			
Clean up	0.010000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.078220	0.023466	0.101686
Material Cost \$			1.084900
Equipment Hours			0.050843

Task code: 0311511

Component: Copper roofing System: Roofing Subsystem: Roof covering
 Task Description: Debris removal by hand & visual insp.- copper roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 2 Task Duration: 0.0004 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Pick up trash/debris & inspection	0.000500			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000580	0.000174	0.000754
Material Cost \$			
Equipment Hours			0.000377

Task code: 0311512

Component: Copper roofing System: Roofing Subsystem: Roof covering
 Task Description: Non-destructive moisture insp.- copper roof
 Unit of Measure: SF Frequency of Occurrence: H: 2.00 A: 3.00 L: 4.00
 Persons per Team: 2 Task Duration: 0.0007 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
On-site inspection of roof membrane	0.001000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001080	0.000324	0.001404
Material Cost \$			
Equipment Hours			0.000702

Task code: 0311513

Component: Copper roofing System: Roofing Subsystem: Roof covering
 Task Description: Minor repairs - copper roof
 Unit of Measure: SF Frequency of Occurrence: H: 4.55 A: 5.00 L: 5.55
 Persons per Team: 2 Task Duration: 0.0004 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Waterproof coating	0.02	0.45
Wire brush surf. to remove oxide	0.000226			
Apply finished coat	0.000136			
Clean joint surfaces	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000542	0.000163	0.000705
Material Cost \$			0.009000
Equipment Hours			0.000353

Task code: 0311514

Component: Copper roofing System: Roofing Subsystem: Roof covering
 Task Description: Minor replacement - copper roof
 Unit of Measure: SF Frequency of Occurrence: H: 18.00 A: 20.00 L: 22.00
 Persons per Team: 2 Task Duration: 0.0034 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	18 oz. copper/nails	0.025	4.85
Dismantle batten seam	0.001710	waterproof coating	0.025	0.45
Straighten & reposition panels	0.001300			
Re-assemble seam	0.001580			
Wire-brush metal surface	0.000280			
Prime and paint	0.000170			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.005220	0.001566	0.006786
Material Cost \$			0.132500
Equipment Hours			0.003396

Task code: 0311515

Component: Copper roofing System: Roofing Subsystem: Roof covering
 Task Description: Flashing repairs - copper roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.75 A: 1.00 L: 1.25
 Persons per Team: 2 Task Duration: 0.0003 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Copper flashing	0.02	3.18
Remove copper panels	0.000140			
Remove step flashing	0.000002			
Install new step flashing	0.000003			
Place copper panels	0.000127			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000452	0.000136	0.000588
Material Cost \$			0.063600
Equipment Hours			0.000294

Task code: 0311517

Component: Copper roofing System: Roofing Subsystem: Roof covering
 Task Description: Total roof replacement - copper roof
 Unit of Measure: SF Frequency of Occurrence: H: 27.00 A: 30.00 L: 33.00
 Persons per Team: 2 Task Duration: 0.199 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	18 oz. copper/nails	1.00	4.85
Dismantle metal panel seams etc.	0.068300	Waterproof coating	1.00	0.45
Remove existing panels	0.052000			
Place new panels	0.080000			
Refasten seam cleat detail needed	0.063300			
Prepare surfaces	0.011300			
Prime and paint	0.006800			
Clean up	0.025100			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.306960	0.092088	0.399048
Material Cost \$			5.300000
Equipment Hours			0.199524

Task code: 0311521

Component: Lead roofing System: Roofing Subsystem: Roof covering
 Task Description: Debris removal by hand & visual insp.- lead roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 2 Task Duration: 0.0004 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Pick up trash/debris & inspection	0.000500			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000580	0.000174	0.000754
Material Cost \$			
Equipment Hours			0.000377

Task code: 0311522

Component: Lead roofing System: Roofing Subsystem: Roof covering
 Task Description: Non-destructive moisture insp.- lead roof
 Unit of Measure: SF Frequency of Occurrence: H: 2.00 A: 3.00 L: 4.00
 Persons per Team: 2 Task Duration: 0.0007 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
On-site inspection of roof membrane	0.001000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001080	0.000324	0.001404
Material Cost \$			
Equipment Hours			0.000702

Task code: 0311523

Component: Lead roofing System: Roofing Subsystem: Roof covering
 Task Description: Minor repairs - lead roof
 Unit of Measure: SF Frequency of Occurrence: H: 4.55 A: 5.00 L: 5.55
 Persons per Team: 2 Task Duration: 0.0004 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Waterproof coating	0.02	0.45
Wire brush surf. to remove oxide	0.000226			
Apply finished coat	0.000136			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000542	0.000163	0.000705
Material Cost \$			0.009000
Equipment Hours			0.000353

Task code: 0311524

Component: Lead roofing System: Roofing Subsystem: Roof covering
 Task Description: Minor replacement - lead roof
 Unit of Measure: SF Frequency of Occurrence: H: 18.00 A: 20.00 L: 22.00
 Persons per Team: 2 Task Duration: 0.0034 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Lead panels/nails	0.025	4.10
Dismantle batten seam	0.001710	waterproof coating	0.025	0.45
Straighten & reposition panels	0.001300			
Re-assemble seam	0.001580			
Wire-brush metal surface	0.000280			
Prime and paint	0.000170			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.005220	0.001566	0.006786
Material Cost \$			0.113750
Equipment Hours			0.003393

Task code: 0311525

Component: Lead roofing System: Roofing Subsystem: Roof covering
 Task Description: Flashing repairs - lead roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.75 A: 1.00 L: 1.25
 Persons per Team: 2 Task Duration: 0.0003 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	lead flashing	0.02	2.62
Remove lead panels	0.000140			
Remove step flashing	0.000002			
Install new step flashing	0.000003			
Place lead panels	0.000127			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000452	0.000136	0.000588
Material Cost \$			0.052400
Equipment Hours			0.000294

Task code: 0311527

Component: Lead roofing System: Roofing Subsystem: Roof covering
 Task Description: Total roof replacement - lead roof
 Unit of Measure: SF Frequency of Occurrence: H: 27.00 A: 30.00 L: 33.00
 Persons per Team: 2 Task Duration: 0.191 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Lead panels/nails	1.00	4.10
Dismantle metal panel seams etc.	0.068300	Waterproof coating	1.00	0.45
Remove existing panels	0.052000			
Place new panels	0.066667			
Refasten seam cleat detail needed	0.063300			
Prepare surfaces	0.011300			
Prime and paint	0.006800			
Clean up	0.025100			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.293627	0.088088	0.381715
Material Cost \$			4.550000
Equipment Hours			0.190858

Task code: 0311531

Component: Stainless steel roofing System: Roofing Subsystem: Roof covering
 Task Description: Debris removal by hand & visual insp.- stainless steel roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 2 Task Duration: 0.0004 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Pick up trash/debris & inspection	0.000500			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000580	0.000174	0.000754
Material Cost \$			
Equipment Hours			0.000377

Task code: 0311532

Component: Stainless steel roofing System: Roofing Subsystem: Roof covering
 Task Description: Non-destructive moisture insp.- stainless steel roof
 Unit of Measure: SF Frequency of Occurrence: H: 2.00 A: 3.00 L: 4.00
 Persons per Team: 2 Task Duration: 0.0007 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
On-site inspection of roof membrane	0.001000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001080	0.000324	0.001404
Material Cost \$			
Equipment Hours			0.000702

Task code: 0311533

Component: Stainless steel roofing System: Roofing Subsystem: Roof covering
 Task Description: Minor repairs - stainless steel roof
 Unit of Measure: SF Frequency of Occurrence: H: 4.55 A: 5.00 L: 5.55
 Persons per Team: 2 Task Duration: 0.0004 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Waterproof coating	0.02	0.45
Wire brush surf. to remove oxide	0.000226			
Apply finished coat	0.000136			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000542	0.000163	0.000705
Material Cost \$			0.009000
Equipment Hours			0.000353

Task code: 0311534

Component: Stainless steel roofing System: Roofing Subsystem: Roof covering
 Task Description: Minor replacement - stainless steel roof
 Unit of Measure: SF Frequency of Occurrence: H: 18.00 A: 20.00 L: 22.00
 Persons per Team: 2 Task Duration: 0.0034 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	28 gauge steel/nails	0.025	2.98
Dismantle batten seam	0.001710	waterproof coating	0.025	0.45
Straighten & reposition panels	0.001300			
Re-assemble seam	0.001580			
Wire-brush metal surface	0.000280			
Prime and paint	0.000170			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.005220	0.001566	0.006786
Material Cost \$			0.085750
Equipment Hours			0.003393

Task code: 0311535

Component: Stainless steel roofing System: Roofing Subsystem: Roof covering
 Task Description: Flashing repairs - stainless steel roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.75 A: 1.00 L: 1.25
 Persons per Team: 2 Task Duration: 0.0003 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Steel flashing	0.02	2.55
Remove stainless steel panels	0.000140			
Remove step flashing	0.000002			
Install new step flashing	0.000003			
Place stainless steel panels	0.000127			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000452	0.000136	0.000588
Material Cost \$			0.051000
Equipment Hours			0.000294

Task code: 0311537

Component: Stainless steel roofing System: Roofing Subsystem: Roof covering
 Task Description: Total roof replacement - stainless steel roof
 Unit of Measure: SF Frequency of Occurrence: H: 27.00 A: 30.00 L: 33.00
 Persons per Team: 2 Task Duration: 0.191 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	28 gauge steel/nails	1.00	2.98
Dismantle metal panel seams etc.	0.068300	Waterproof coating	1.00	0.45
Remove existing panels	0.052000			
Place new panels	0.066667			
Refasten seam cleat detail needed	0.063300			
Prepare surfaces	0.011300			
Prime and paint	0.006800			
Clean up	0.025100			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.293627	0.088088	0.381715
Material Cost \$			3.430000
Equipment Hours			0.190858

Task code: 0311541

Component: Zinc roofing System: Roofing Subsystem: Roof covering
 Task Description: Debris removal by hand & visual insp.- zinc roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 2 Task Duration: 0.0004 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Pick up trash/debris & inspection	0.000500			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000580	0.000174	0.000754
Material Cost \$			
Equipment Hours			0.000377

Task code: 0311542

Component: Zinc roofing System: Roofing Subsystem: Roof covering
 Task Description: Non-destructive moisture insp.- zinc roof
 Unit of Measure: SF Frequency of Occurrence: H: 2.00 A: 3.00 L: 4.00
 Persons per Team: 2 Task Duration: 0.0007 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
On-site inspection of roof membrane	0.001000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001080	0.000324	0.001404
Material Cost \$			
Equipment Hours			0.000702

Task code: 0311543

Component: Zinc roofing System: Roofing Subsystem: Roof covering
 Task Description: Minor repairs - zinc roof
 Unit of Measure: SF Frequency of Occurrence: H: 4.55 A: 5.00 L: 5.55
 Persons per Team: 2 Task Duration: 0.0004 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Waterproof coating	0.02	0.45
Wire brush surf. to remove oxide	0.000226			
Apply finished coat	0.000136			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000542	0.000163	0.000705
Material Cost \$			0.009000
Equipment Hours			0.000353

Task code: 0311544

Component: Zinc roofing System: Roofing Subsystem: Roof covering
 Task Description: Minor replacement - zinc roof
 Unit of Measure: SF Frequency of Occurrence: H: 18.00 A: 20.00 L: 22.00
 Persons per Team: 2 Task Duration: 0.0034 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Zinc panels/nails	0.025	6.25
Dismantle batten seam	0.001710	waterproof coating	0.025	0.45
Straighten & reposition panels	0.001300			
Re-assemble seam	0.001580			
Wire-brush metal surface	0.000280			
Prime and paint	0.000170			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.005220	0.001566	0.006786
Material Cost \$			0.167500
Equipment Hours			0.003393

Task code: 0311545

Component: Zinc roofing System: Roofing Subsystem: Roof covering
 Task Description: Flashing repairs - zinc roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.75 A: 1.00 L: 1.25
 Persons per Team: 2 Task Duration: 0.0003 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Zinc/copr alloy flashing	0.02	4.28
Remove zinc panels	0.000140			
Remove step flashing	0.000002			
Install new step flashing	0.000003			
Place zinc panels	0.000127			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000452	0.000136	0.000588
Material Cost \$			0.085600
Equipment Hours			0.000294

Task code: 0311547

Component: Zinc roofing System: Roofing Subsystem: Roof covering
 Task Description: Total roof replacement - zinc roof
 Unit of Measure: SF Frequency of Occurrence: H: 27.00 A: 30.00 L: 33.00
 Persons per Team: 2 Task Duration: 0.193 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Zinc panels/nails	1.00	6.25
Dismantle metal panel seams etc.	0.068300	Waterproof coating	1.00	0.45
Remove existing panels	0.052000			
Place new panels	0.069570			
Refasten seam cleat detail needed	0.063300			
Prepare surfaces	0.011300			
Prime and paint	0.006800			
Clean up	0.025100			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.296530	0.088959	0.385489
Material Cost \$			6.700000
Equipment Hours			0.192745

Task code: 0311231

Component: Elastomeric roofing System: Roofing Subsystem: Roof covering
 Task Description: Debris removal by hand & visual insp.- elastomeric roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.40 A: 0.50 L: 0.60
 Persons per Team: 2 Task Duration: 0.0007 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Pick up trash/debris & inspection	0.000500			
Onsite inspection	0.000500			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001080	0.000324	0.001404
Material Cost \$			
Equipment Hours			0.000702

Task code: 0311232

Component: Elastomeric roofing System: Roofing Subsystem: Roof covering
 Task Description: Non-destructive moisture insp.- elastomeric roof
 Unit of Measure: SF Frequency of Occurrence: H: 2.00 A: 3.00 L: 4.00
 Persons per Team: 2 Task Duration: 0.0007 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
On-site inspection of roof membrane	0.001000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001080	0.000324	0.001404
Material Cost \$			
Equipment Hours			0.000702

Task code: 0311233

Component: Elastomeric roofing System: Roofing Subsystem: Roof covering
 Task Description: Minor repairs - elastomeric roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.75 A: 1.00 L: 1.25
 Persons per Team: 2 Task Duration: 0.0059 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Prepare surface	0.003000	EPDM, 55 mils	0.02	0.57
Install membrane patch	0.004000	Adhesive/lap sealant	0.02	1.72
Seal seams	0.002000	Deterg't,surface prep.	0.02	1.15
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.009100	0.002730	0.011830
Material Cost \$			0.068914
Equipment Hours			0.005915

Task code: 0311234

Component: Elastomeric roofing System: Roofing Subsystem: Roof covering
 Task Description: Minor replacement - elastomeric roof
 Unit of Measure: SF Frequency of Occurrence: H: 9.00 A: 10.00 L: 11.00
 Persons per Team: 2 Task Duration: 0.0016 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	2" polystyrene insul.	0.025	0.32
Reset fasteners	0.000500	Adhesive/lap sealant	0.025	1.72
Prepare surface	0.000500	EPDM, 55mils	0.025	0.57
Install membrane patch	0.001000	Fasteners	0.025	0.25
Seal seams	0.000250			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.002430	0.000729	0.003159
Material Cost \$			0.071618
Equipment Hours			0.001580

Task code: 0311235

Component: Elastomeric roofing System: Roofing Subsystem: Roof covering
 Task Description: Flashing repairs - elastomeric roof
 Unit of Measure: SF Frequency of Occurrence: H: 0.75 A: 1.00 L: 1.25
 Persons per Team: 2 Task Duration: 0.0008 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	hypalon flashing	0.02	2.57
Remove damaged flashing	0.000300	hypalon adhesive	0.02	1.02
Prepare surface	0.000200	deterg't surface prep.	0.02	1.15
Install new flashing	0.000400			
Seal lap	0.000200			
Clean up	0.000020			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001280	0.000384	0.001664
Material Cost \$			0.094786
Equipment Hours			0.000832

Task code: 0311237

Component: Elastomeric roofing System: Roofing Subsystem: Roof covering
 Task Description: Total roof replacement - elastomeric roof
 Unit of Measure: SF Frequency of Occurrence: H: 18.00 A: 20.00 L: 22.00
 Persons per Team: 5 Task Duration: 0.006 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	2" polystyrene insul.	1.00	0.32
Tear off existing membrane/insulation	0.015400	Adhesive/lap sealant	1.00	1.72
Replace insulation	0.002000	EPDM, 55 mils	1.00	0.57
Install membrane	0.004572	Fasteners	1.00	0.25
Clean up	0.001000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.023132	0.006940	0.030072
Material Cost \$			2.864700
Equipment Hours			0.006014

Task code: 0311641

Component: Corrugated alum. panels System: Roofing Subsystem: Roof covering
 Task Description: Debris removal by hand & visual insp.- corrugated alum. panels
 Unit of Measure: SF Frequency of Occurrence: H: 4.00 A: 5.00 L: 6.00
 Persons per Team: 2 Task Duration: 0.0008 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Pick up trash/debris & inspection	0.000550			
Onsite inspection	0.000550			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001180	0.000354	0.001534
Material Cost \$			
Equipment Hours			0.000767

Task code: 0311642

Component: Corrugated alum. panels System: Roofing Subsystem: Roof covering
 Task Description: Non-destructive moisture insp.- corrugated alum. panels
 Unit of Measure: SF Frequency of Occurrence: H: 2.00 A: 3.00 L: 4.00
 Persons per Team: 2 Task Duration: 0.0008 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
On-site inspection of roof membrane	0.001100			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001180	0.000354	0.001534
Material Cost \$			
Equipment Hours			0.000767

Task code: 0311643

Component: Corrugated alum. panels System: Roofing Subsystem: Roof covering
 Task Description: Minor repairs - corrugated alum. panels
 Unit of Measure: SF Frequency of Occurrence: H: 0.75 A: 1.00 L: 1.25
 Persons per Team: 2 Task Duration: 0.0005 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000210			
Sweep/spud ballast clean	0.000110			
Lean away any loose surfacing	0.000199			
Apply new adhesive & surface	0.000179			
Respread ballast	0.000054			
Clean up	0.000005			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000757	0.000227	0.000984
Material Cost \$			
Equipment Hours			0.000492

Task code: 0311644

Component: Corrugated alum. panels System: Roofing Subsystem: Roof covering
 Task Description: Minor replacement - corrug.alum.panels
 Unit of Measure: SF Frequency of Occurrence: H: 9.00 A: 10.00 L: 11.00
 Persons per Team: 2 Task Duration: 0.0007 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000210	Adhesive/felt	0.25	0.145
Sweep/spud ballast clean	0.000206	Insul/panel	0.25	1.69
Remove strip-in & joint seal	0.000302	Mastic	0.25	2.73
Remove damaged panel	0.000185			
Install new panel	0.000107			
Renew strip-in with joint seal	0.000119			
Clean up	0.000006			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001135	0.000341	0.001476
Material Cost \$			1.141250
Equipment Hours			0.000738

Task code: 0311645

Component: Corrugated alum. panels System: Roofing Subsystem: Roof covering
 Task Description: Flashing repairs - corrug.alum.panels
 Unit of Measure: SF Frequency of Occurrence: H: 0.75 A: 1.00 L: 1.25
 Persons per Team: 2 Task Duration: 0.0003 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000210	aluminum flashing	0.002	0.92
Clean/dry membrane surfaces	0.000002			
Cut flashing	0.000105			
Apply flashing	0.000187			
Clean up	0.000001			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000505	0.000152	0.000657
Material Cost \$			0.001840
Equipment Hours			0.000328

Task code: 0311647

Component: Corrugated alum. panels System: Roofing Subsystem: Roof covering
 Task Description: Total roof replacement - corrug.alum.panels
 Unit of Measure: SF Frequency of Occurrence: H: 18.00 A: 20.00 L: 22.00
 Persons per Team: 2 Task Duration: 0.023 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000210	0.024" alum panel	1.00	1.14
Remove existing panels	0.017325	Sealant	1.00	0.145
Replace insulation	0.012892	Mastic	1.00	2.73
Clean adjacent membrane	0.000300			
Install new panel	0.002575			
Apply adhesive to seams	0.001404			
Clean up	0.000242			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.034948	0.010484	0.045432
Material Cost \$			4.015000
Equipment Hours			0.022716

Task code: 0311811

Component: Aluminum gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Debris removal by hand & visual insp.- alum. gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0002 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Pick up trash/debris & inspection	0.000050			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000130	0.000039	0.000169
Material Cost \$			
Equipment Hours			0.000169

Task code: 0311812

Component: Aluminum gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Cleaning- alum. gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 1.00 A: 2.00 L: 3.00
 Persons per Team: 1 Task Duration: 0.0006 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Hose down inside and out	0.000417			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000497	0.000149	0.000646
Material Cost \$			
Equipment Hours			0.000646

Task code: 0311813

Component: Aluminum gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Minor corrosion removal- alum. gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 4.00 A: 5.00 L: 6.00
 Persons per Team: 1 Task Duration: 0.0007 hours Once every (H, A, L) years
 Trade: Painting Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Paint	1.00	0.013
Wire brush surf. to remove oxide	0.000226			
Refinish surface	0.000116			
Clean up	0.000010			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000512	0.000151	0.000663
Material Cost \$			0.013000
Equipment Hours			0.000663

Task code: 0311814

Component: Aluminum gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Partial replacement- alum. gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 4.00 A: 5.00 L: 6.00
 Persons per Team: 1 Task Duration: 0.015 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Alum.downspout,	0.10	1.43
Remove defective section	0.005025	Alum. Gutter	0.10	1.20
Install, adjust	0.006700			
Clean up	0.000010			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.011895	0.003566	0.015461
Material Cost \$			0.263000
Equipment Hours			0.015461

Task code: 0311815

Component: Aluminum gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Total replacement- alum. gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 9.00 A: 10.00 L: 11.00
 Persons per Team: 2 Task Duration: 0.076 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Alum.downspout,	1.00	1.43
Remove existing system	0.050250	Alum. Gutter	1.00	1.20
Install, adjust new system	0.067000	Alum. Wire strainer	0.025	3.10
Clean up	0.000010			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.117420	0.035223	0.152643
Material Cost \$			2.707500
Equipment Hours			0.076317

Task code: 0311821

Component: Copper gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Debris removal by hand & visual insp.- copper gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0002 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Pick up trash/debris & inspection	0.000050			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000130	0.000039	0.000169
Material Cost \$			
Equipment Hours			0.000169

Task code: 0311822

Component: Copper gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Cleaning- Copper gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 1.00 A: 2.00 L: 3.00
 Persons per Team: 1 Task Duration: 0.0006 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Hose down inside and out	0.000417			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000497	0.000149	0.000646
Material Cost \$			
Equipment Hours			0.000646

Task code: 0311823

Component: Copper gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Minor corrosion removal- copper gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 4.00 A: 5.00 L: 6.00
 Persons per Team: 1 Task Duration: 0.0042 hours Once every (H, A, L) years
 Trade: Painting Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Paint	1.00	0.013
Remove rust/clean surface	0.002923			
Refinish surface	0.000116			
Clean up	0.000010			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.003209	0.000960	0.004169
Material Cost \$			0.013000
Equipment Hours			0.004169

Task code: 0311824

Component: Copper gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Partial replacement- copper gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 4.00 A: 5.00 L: 6.00
 Persons per Team: 1 Task Duration: 0.015 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Copper downspout,	0.10	5.20
Remove defective section	0.005025	Copper Gutter	0.10	3.33
Install, adjust	0.006700			
Clean up	0.000010			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.011895	0.003566	0.015461
Material Cost \$			0.853000
Equipment Hours			0.015461

Task code: 0311825

Component: Copper gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Total replacement- copper gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 9.00 A: 10.00 L: 11.00
 Persons per Team: 2 Task Duration: 0.076 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	copper downspout,	1.00	5.20
Remove existing system	0.050250	copper gutter	1.00	3.33
Install, adjust new system	0.067000	copper wire strainer	0.025	5.60
Clean up	0.000010			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.117420	0.035223	0.152643
Material Cost \$			8.670000
Equipment Hours			0.076317

Task code: 0311831

Component: Galv.steel gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Debris removal by hand & visual insp.- galv.steel gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0002 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Pick up trash/debris & inspection	0.000050			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000130	0.000039	0.000169
Material Cost \$			
Equipment Hours			0.000169

Task code: 0311832

Component: Galv.steel gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Cleaning- Galv.steel gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 1.00 A: 2.00 L: 3.00
 Persons per Team: 1 Task Duration: 0.0006 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Hose down inside and out	0.000417			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000497	0.000149	0.000646
Material Cost \$			
Equipment Hours			0.000646

Task code: 0311833

Component: Galv.steel gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Minor corrosion removal- Galv.steel gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 4.00 A: 5.00 L: 6.00
 Persons per Team: 1 Task Duration: 0.0042 hours Once every (H, A, L) years
 Trade: Painting Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Paint	1.00	0.013
Remove rust/clean surface	0.002923			
Refinish surface	0.000116			
Clean up	0.000010			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.003209	0.000960	0.004169
Material Cost \$			0.013000
Equipment Hours			0.004169

Task code: 0311834

Component: Galv.steel gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Partial replacement- galv.steel gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 4.00 A: 5.00 L: 6.00
 Persons per Team: 1 Task Duration: 0.015 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	galv.steel downspout,	0.10	1.48
Remove defective section	0.005025	galv.steel gutter	0.10	0.82
Install, adjust	0.006700			
Clean up	0.000010			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.011895	0.003566	0.015461
Material Cost \$			0.230000
Equipment Hours			0.015461

Task code: 0311835

Component: galv.steel gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Total replacement- galv.steel gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 9.00 A: 10.00 L: 11.00
 Persons per Team: 2 Task Duration: 0.076 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	galv.steel downspout,	1.00	1.48
Remove existing system	0.050250	galv.steel gutter	1.00	0.82
Install, adjust new system	0.067000	steel wire strainer	0.025	2.53
Clean up	0.000010			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.117420	0.035223	0.152643
Material Cost \$			2.363250
Equipment Hours			0.076317

Task code: 0311841

Component: Plastic gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Debris removal by hand & visual insp.- plastic gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0002 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Pick up trash/debris & inspection	0.000050			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000130	0.000039	0.000169
Material Cost \$			
Equipment Hours			0.000169

Task code: 0311842

Component: Plastic gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Cleaning- plastic gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 1.00 A: 2.00 L: 3.00
 Persons per Team: 1 Task Duration: 0.0006 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Hose down inside and out	0.000417			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000497	0.000149	0.000646
Material Cost \$			
Equipment Hours			0.000646

Task code: 0311844

Component: Plastic gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Partial replacement- plastic gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 4.00 A: 5.00 L: 6.00
 Persons per Team: 1 Task Duration: 0.016 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	galv.steel downspout,	0.10	1.71
Remove defective section	0.005025	vinyl gutter	0.10	1.04
Install, adjust	0.007300			
Clean up	0.000010			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.012495	0.003746	0.016241
Material Cost \$			0.275000
Equipment Hours			0.016241

Task code: 0311845

Component: Plastic gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Total replacement- plastic gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 9.00 A: 10.00 L: 11.00
 Persons per Team: 2 Task Duration: 0.080 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	galv.steel downspout,	1.00	1.71
Remove existing system	0.050250	vinyl gutter	1.00	1.04
Install, adjust new system	0.073000	steel wire strainer	0.025	2.53
Clean up	0.000010			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.123420	0.037023	0.160443
Material Cost \$			2.813250
Equipment Hours			0.080217

Task code: 0311851

Component: Wooden gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Debris removal by hand & visual insp.- wooden gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0002 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Pick up trash/debris & inspection	0.000050			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000130	0.000039	0.000169
Material Cost \$			
Equipment Hours			0.000169

Task code: 0311852

Component: Wooden gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Cleaning- wooden gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 1.00 A: 2.00 L: 3.00
 Persons per Team: 1 Task Duration: 0.0006 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000080			
Hose down inside and out	0.000417			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000497	0.000149	0.000646
Material Cost \$			
Equipment Hours			0.000646

Task code: 0311853

Component: Wooden gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Refinishing - Wooden gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 4.00 A: 5.00 L: 6.00
 Persons per Team: 1 Task Duration: 0.0042 hours Once every (H, A, L) years
 Trade: Painting Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Paint	1.00	0.02
Prepare/clean surface	0.002923			
Refinish surface	0.000116			
Clean up	0.000010			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.003209	0.000960	0.004169
Material Cost \$			0.020000
Equipment Hours			0.004169

Task code: 0311854

Component: Wooden gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Partial replacement- wooden gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 4.00 A: 5.00 L: 6.00
 Persons per Team: 1 Task Duration: 0.017 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	copper downspout	0.10	5.40
Remove defective section	0.005025	wooden gutter	0.10	7.05
Install, adjust	0.008000			
Clean up	0.000010			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.013195	0.003956	0.017151
Material Cost \$			1.245000
Equipment Hours			0.017151

Task code: 0311855

Component: Wooden gutters & leaders System: Roofing Subsystem: Roof covering
 Task Description: Total replacement- wooden gutters & leaders
 Unit of Measure: LF Frequency of Occurrence: H: 9.00 A: 10.00 L: 11.00
 Persons per Team: 2 Task Duration: 0.085 hours Once every (H, A, L) years
 Trade: Roofer Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	copper downspout,	1.00	5.40
Remove existing system	0.050250	wooden gutter	1.00	7.05
Install, adjust new system	0.080000	copper wire strainer	0.025	4.37
Clean up	0.000010			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.130420	0.039123	0.169543
Material Cost \$			12.559250
Equipment Hours			0.084767

Task code: 0312152

Component: Dome Skylight System: Roofing Subsystem: Roof openings
 Task Description: Repair dome skylight
 Unit of Measure: SF Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.0023 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160			
Repair skylight (2% labor)	0.001620			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.001780	0.000534	0.002314
Material Cost \$			
Equipment Hours			0.002314

Task code: 0312155

Component: Dome Skylight System: Roofing Subsystem: Roof openings
 Task Description: Replace dome skylight
 Unit of Measure: SF Frequency of Occurrence: H: 65.00 A: 75.00 L: 85.00
 Persons per Team: 1 Task Duration: 0.2108 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup/secure/take down ladder	0.000160	Plastic dome skylight	1	15.15
Remove skylight	0.081000			
Replace skylight	0.081000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.162160	0.048648	0.210802
Material Cost \$			15.15000
Equipment Hours			0.210802

Task code: 0312212

Component: Small roof hatch System: Roofing Subsystem: Roof openings
 Task Description: Repair small roof hatch
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.0859 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder (1% EPS)	0.002100			
Repair roof hatch (2% labor)	0.064000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.066100	0.019830	0.085930
Material Cost \$			
Equipment Hours			0.085930

Task code: 0312215

Component: Small roof hatch System: Roofing Subsystem: Roof openings
 Task Description: Replace small roof hatch
 Unit of Measure: Count Frequency of Occurrence: H: 65.00 A: 75.00 L: 85.00
 Persons per Team: 1 Task Duration: 6.2427 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder (1% EPS)	0.002100	Small alum. roof hatch	1	325.00
Remove roof hatch	1.600000			
Replace roof hatch	3.200000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	4.802100	1.440630	6.242730
Material Cost \$			325.000000
Equipment Hours			6.242730

Task code: 0312222

Component: Large roof hatch System: Roofing Subsystem: Roof openings
 Task Description: Repair large roof hatch
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.1288 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder (1% EPS)	0.002100			
Repair roof hatch (2% labor)	0.096960			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.099060	0.029718	0.128778
Material Cost \$			
Equipment Hours			0.128778

Task code: 0312225

Component: Large roof hatch System: Roofing Subsystem: Roof openings
 Task Description: Replace large roof hatch
 Unit of Measure: Count Frequency of Occurrence: H: 65.00 A: 75.00 L: 85.00
 Persons per Team: 1 Task Duration: 9.4563 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder (1% EPS)	0.002100	Large alum. roof hatch	1	890.00
Remove roof hatch	2.424000			
Replace roof hatch	4.848000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	7.274100	2.182230	9.456330
Material Cost \$			890.000000
Equipment Hours			9.456330

Task code: 0312111

Component: Semi-Circular Skyroof

System: Roofing

Subsystem: Roof Openings

Task Description: Broken glass replacement

Unit of Measure: Horiz. Square Feet Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10

Persons per Team: 1 Task Duration: 0.0880 hours Once every (H, A, L) years

Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Set up/secure/take down ladder	0.000160	Glass (1% per Hor. S.F.)	0.377	2.3000
Remove/replace glass (1% lbr hrs)	0.048224			
Clean up	0.019289			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.067673	0.020302	0.087974
Material	Cost \$			0.867100
Equipment	Hours			0.087974

Task code: 0312112

Component: Semi-Circular Skyroof

System: Roofing

Subsystem: Roof Openings

Task Description: Repair semi-circular skyroof

Unit of Measure: Horiz. Square Feet Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00

Persons per Team: 1 Task Duration: 0.1660 hours Once every (H, A, L) years

Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Set up/secure/take down ladder	0.000160	Gaskets (per Hor. S.F.)	0.079	19.7921
Repair skyroof	0.106306	Mullin/putty	0.080	2.000
Clean up	0.021261	Misc. Hardware	0.008	201.00

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.127727	0.038318	0.166045
Material	Cost \$			3.331572
Equipment	Hours			0.166045

Task code: 0312115

Component: Semi-Circular Skyroof

System: Roofing

Subsystem: Roof Openings

Task Description: Replace semi-circular skyroof

Unit of Measure: Horiz. Square Feet

Frequency of Occurrence: H: 65.00 A: 75.00 L: 85.00

Persons per Team: 1

Task Duration: 0.6897 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Set up/secure/take down ladder	0.000160	Skyroof (in Hor. S.F.)	1.000	42.0000
Remove skyroof	0.221000	Sealant (in Hor. S.F.)	0.083	2.000
Replace skyroof	0.221000			
Clean up	0.088400			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.530560	0.159168	0.689728
Material	Cost \$			42.000000
Equipment	Hours			0.689728

Task code: 0312121

Component: Pyramidal Skyroof

System: Roofing

Subsystem: Roof Opening

Task Description: Broken glass replacement - pyramidal skyroof

Unit of Measure: Horiz. Square Feet

Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10

Persons per Team: 1

Task Duration: 0.0662 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Set up/secure/take down ladder	0.000160	Glass (1% per Hor. S.F.)	0.165	1.1500
Remove/replace glass (1% lbrhrs)	0.042331			
Clean up	0.008466			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.050957	0.015287	0.066244
Material	Cost \$			0.189750
Equipment	Hours			0.066244

Task code: 0312122

Component: Pyramidal Skyroof

System: Roofing

Subsystem: Roof Openings

Task Description: Repair pyramidal skyroof

Unit of Measure: Horizontal Square Feet Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00

Persons per Team: 1

Task Duration: 0.1458 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Set up/secure/take down ladder	0.000160	Gaskets (per Hor. S.F.)	0.069	12.6000
Repair window	0.093315	Mullin/Putty	0.069	2.000
Clean up	0.018663	Misc. Hardware	0.007	146.00

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.112138	0.033642	0.145780
Material	Cost \$			2.026250
Equipment	Hours			0.145780

Task code: 0312125

Component: Pyramidal Skyroof

System: Roofing

Subsystem: Roof Openings

Task Description: Replace pyramidal skyroof

Unit of Measure: Horiz. Square Feet Frequency of Occurrence: H: 65.00 A: 75.00 L: 85.00

Persons per Team: 1

Task Duration: 0.6055

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Set up/secure/take down ladder	0.000160	Skyroof (in Hor. S.F.)	1.000	28.0000
Remove skyroof	0.194000	Sealant (in Hor. S.F.)	0.083	2.0000
Replace skyroof	0.194000			
Clean up	0.077600			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.465760	0.139728	0.605488
Material	Cost \$			28.166000
Equipment	Hours			0.605488

Task code: 0312131

Component: Grid-Type Skyroof

System: Roofing

Subsystem: Roof Openings

Task Description: Broken glass replacement - grid-type skyroof

Unit of Measure: Horiz. Square Feet Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10

Persons per Team: 1 Task Duration: 0.0699 hours Once every (H, A, L) years

Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Set up/secure/take down ladder	0.000160	Glass (1% per Hor. S.F.)	0.129	1.1500
Remove/replace glass (1% Means)	0.044704			
Clean up	0.008941			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.053804	0.016141	0.069946
Material	Cost \$			0.148868
Equipment	Hours			0.069946

Task code: 0312132

Component: Grid-Type Skyroof

System: Roofing

Subsystem: Roof Openings

Task Description: Repair grid-type skyroof

Unit of Measure: Horiz. Square Feet Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00

Persons per Team: 1 Task Duration: 0.1539 hours Once every (H, A, L) years

Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Set up/secure/take down ladder	0.000160	Gaskets (per Hor. S.F.)	0.054	12.6000
Repair skyroof	0.093315	Mullin/Putty	0.054	2.000
Clean up	0.019709	Misc. Hardware	0.005	146.00

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.118415	0.035524	0.153939
Material	Cost \$			1.517140
Equipment	Hours			0.153939

Task code: 0312135

Component: Grid-Type Skyroof

System: Roofing

Subsystem: Roof Opening

Task Description: Replace grid-type skyroof

Unit of Measure: Horiz. Square Feet

Frequency of Occurrence: H: 65.00 A: 75.00 L: 85.00

Persons per Team: 1

Task Duration: 0.6398 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Set up/secure/take down ladder	0.000160	Skyroof (in Hor. S.F.)	1.000	29.5000
Remove skyroof	0.205000	Sealant (in Hor. S.F.)	0.083	2.000
Replace skyroof	0.205000			
Clean up	0.082000			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.492160	0.147648	0.639808
Material	Cost \$			29.666000
Equipment	Hours			0.639808

Task code: 0312141

Component: Ridge-unit Skyroof

System: Roofing

Subsystem: Roof Openings

Task Description: Broken glass replacement - ridge-unit skyroof

Unit of Measure: Horiz. Square Feet

Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10

Persons per Team: 1

Task Duration: 0.0960 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Set up/secure/take down ladder	0.000160	Glass (1% per Hor. S.F.)	0.300	2.3000
Remove/replace glass (1% Means)	0.061400			
Clean up	0.012280			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.073840	0.022152	0.095992
Material	Cost \$			0.690000
Equipment	Hours			0.095992

Task code: 0312142

Component: Ridge-unit Skyroof

System: Roofing

Subsystem: Roof Openings

Task Description: Repair ridge-unit skyroof

Unit of Measure: Horiz. Square Feet Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00

Persons per Team: 1 Task Duration: 0.0507 hours Once every (H, A, L) years

Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Set up/secure/take down ladder	0.000160	Gaskets (per Hor. S.F.)	0.063	25.2000
Repair skyroof	0.032380	Mullin/Putty	0.063	2.000
Clean up	0.006476	Misc. Hardware	0.006	201.00

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.039016	0.011705	0.050721
Material	Cost \$			2.907000
Equipment	Hours			0.050721

Task code: 0312145

Component: Ridge-unit Skyroof

System: Roofing

Subsystem: Roof Opening

Task Description: Replace ridge-unit skyroof

Unit of Measure: Horiz. Square Feet Frequency of Occurrence: H: 65.00 A: 75.00 L: 85.00

Persons per Team: 1 Task Duration: 0.7677hours Once every (H, A, L) years

Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Set up/secure/take down ladder	0.000160	Skyroof (in Hor. S.F.)	1.000	90.0000
Remove skyroof	0.246000			
Replace skyroof	0.246000			
Clean up	0.098400			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.590560	0.177168	0.767728
Material	Cost \$			90.000000
Equipment	Hours			0.767728

Appendix B: Additions to MRPM Task

Database: Exterior Closing

Preceding Page Blank

0415000 Exterior finishes

Task code: 0415P12

Component: Stone panels (heavy) System: Exterior closure Subsystem: Exterior finishes
 Task Description: Repair stone panels - 1st floor
 Unit of Measure: Square Foot (SF) Frequency of Occurrence: H: 20.00 A: 25.00 L: 30.00
 Persons per Team: 1 Task Duration: 0.0044 hours Once every (H, A, L) years
 Trade: Masonry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Move, up/down ladder	0.002100	Limestone facing panels	0.02	22.00
Remove damage (2% surface)	0.000880			
Reset stone	0.000400			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.003380	0.001014	0.004394
Material Cost \$			0.440000
Equipment Hours			0.004394

Task code: 0415P15

Component: Stone panels (heavy) System: Exterior closure Subsystem: Exterior finishes
 Task Description: Replace stone panels - 1st floor
 Unit of Measure: SF Frequency of Occurrence: H: 300.00 A: 350.00 L: 400.00
 Persons per Team: 2 Task Duration: 0.1305 hours Once every (H, A, L) years
 Trade: Masonry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffold	0.005900	Limestone facing panels	1.00	22.00
Remove stone	0.044000			
Replace stone	0.145000			
Remove scaffold	0.005900			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.200800	0.060240	0.261040
Material Cost \$			22.000000
Equipment Hours			0.130520

Task code: 0415P22

Component: Stone panels (heavy) System: Exterior closure Subsystem: Exterior finishes
 Task Description: Repair stone panels – 2nd floor
 Unit of Measure: Square Foot (SF) Frequency of Occurrence: H: 20.00 A: 25.00 L: 30.00
 Persons per Team: 1 Task Duration: 0.0201 hours Once every (H, A, L) years
 Trade: Masonry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffold	0.006700	Limestone facing panels	0.02	22.00
Remove damage (2% surface)	0.000968			
Reset stone	0.001088			
Remove scaffold	0.006700			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.015456	0.004637	0.020092
Material Cost \$			0.440000
Equipment Hours			0.020092

Task code: 0415P25

Component: Stone panels (heavy) System: Exterior closure Subsystem: Exterior finishes
 Task Description: Replace stone panels – 2nd floor
 Unit of Measure: SF Frequency of Occurrence: H: 300.00 A: 350.00 L: 400.00
 Persons per Team: 2 Task Duration: 0.1500 hours Once every (H, A, L) years
 Trade: Masonry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffold	0.011500	Limestone facing panels	1.00	22.00
Remove stone	0.048400			
Replace stone	0.159398			
Remove scaffold	0.011500			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.230798	0.069239	0.300037
Material Cost \$			22.000000
Equipment Hours			0.150018

Task code: 0415P32

Component: Stone panels (heavy) System: Exterior closure Subsystem: Exterior finishes
 Task Description: Repair stone panels - 3rd floor
 Unit of Measure: Square Foot (SF) Frequency of Occurrence: H: 20.00 A: 25.00 L: 30.00
 Persons per Team: 1 Task Duration: 0.0285 hours Once every (H, A, L) years
 Trade: Masonry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffold	0.009800	Limestone facing panels	0.02	22.00
Remove damage (2% surface)	0.001056			
Reset stone	0.001270			
Remove scaffold	0.009800			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.021926	0.006578	0.028504
Material Cost \$			0.440000
Equipment Hours			0.028504

Task code: 0415P35

Component: Stone panels (heavy) System: Exterior closure Subsystem: Exterior finishes
 Task Description: Replace stone panels - 3rd floor
 Unit of Measure: SF Frequency of Occurrence: H: 300.00 A: 350.00 L: 400.00
 Persons per Team: 2 Task Duration: 0.1696 hours Once every (H, A, L) years
 Trade: Masonry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffold	0.017000	Limestone facing panels	1.00	22.00
Remove stone	0.052800			
Replace stone	0.174050			
Remove scaffold	0.017000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.260850	0.078255	0.339105
Material Cost \$			22.000000
Equipment Hours			0.169553

Task code: 0415Y12

Component: Stone panels (veneer) System: Exterior closure Subsystem: Exterior finishes
 Task Description: Repair stone panels - 1st floor
 Unit of Measure: Square Foot (SF) Frequency of Occurrence: H: 20.00 A: 25.00 L: 30.00
 Persons per Team: 1 Task Duration: 0.0081 hours Once every (H, A, L) years
 Trade: Masonry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Move, up/down ladder	0.002100	Granite veneer/mortar	0.02	20.50
Remove damage (2% surface)	0.000880			
Reset stone veneer	0.003273			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.006253	0.001876	0.008128
Material Cost \$			0.410000
Equipment Hours			0.008128

Task code: 0415Y15

Component: Stone panels (veneer) System: Exterior closure Subsystem: Exterior finishes
 Task Description: Replace stone panels - 1st floor
 Unit of Measure: SF Frequency of Occurrence: H: 300.00 A: 350.00 L: 400.00
 Persons per Team: 2 Task Duration: 0.2365 hours Once every (H, A, L) years
 Trade: Masonry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffold	0.005900	Granite veneer/mortar	1.00	20.50
Remove stone veneer	0.044000			
Replace stone veneer	0.308000			
Remove scaffold	0.005900			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.363800	0.109140	0.472940
Material Cost \$			20.500000
Equipment Hours			0.236470

Task code: 0415Y22

Component: Stone panels (veneer) System: Exterior closure Subsystem: Exterior finishes
 Task Description: Repair stone panels – 2nd floor
 Unit of Measure: Square Foot (SF) Frequency of Occurrence: H: 20.00 A: 25.00 L: 30.00
 Persons per Team: 1 Task Duration: 0.0217 hours Once every (H, A, L) years
 Trade: Masonry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffold	0.006700	Granite veneer/mortar	0.02	20.50
Remove damage (2% surface)	0.000968			
Reset stone veneer	0.002310			
Remove scaffold	0.006700			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.016678	0.005003	0.021681
Material Cost \$			0.410000
Equipment Hours			0.021681

Task code: 0415Y25

Component: Stone panels (veneer) System: Exterior closure Subsystem: Exterior finishes
 Task Description: Replace stone panels – 2nd floor
 Unit of Measure: SF Frequency of Occurrence: H: 300.00 A: 350.00 L: 400.00
 Persons per Team: 2 Task Duration: 0.2665 hours Once every (H, A, L) years
 Trade: Masonry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffold	0.011500	Granite veneer/mortar	1.00	20.50
Remove stone veneer	0.048400			
Replace stone veneer	0.338581			
Remove scaffold	0.011500			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.409981	0.122994	0.532975
Material Cost \$			20.500000
Equipment Hours			0.266488

Task code: 0415Y32

Component: Stone panels (veneer) System: Exterior closure Subsystem: Exterior finishes
 Task Description: Repair stone panels – 3rd floor
 Unit of Measure: Square Foot (SF) Frequency of Occurrence: H: 20.00 A: 25.00 L: 30.00
 Persons per Team: 1 Task Duration: 0.0304 hours Once every (H, A, L) years
 Trade: Masonry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffold	0.009800	Granite veneer/mortar	0.02	20.50
Remove damage (2% surface)	0.001056			
Reset stone veneer	0.002695			
Remove scaffold	0.009800			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.023351	0.007005	0.030356
Material Cost \$			0.410000
Equipment Hours			0.030356

Task code: 0415Y35

Component: Stone panels (veneer) System: Exterior closure Subsystem: Exterior finishes
 Task Description: Replace stone panels – 3rd floor
 Unit of Measure: SF Frequency of Occurrence: H: 300.00 A: 350.00 L: 400.00
 Persons per Team: 2 Task Duration: 0.2967 hours Once every (H, A, L) years
 Trade: Masonry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffold	0.017000	Granite veneer/mortar	1.00	20.50
Remove stone veneer	0.052800			
Replace stone veneer	0.369709			
Remove scaffold	0.017000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.456509	0.136953	0.593462
Material Cost \$			20.500000
Equipment Hours			0.296731

0420000 Exterior Doors

Task code: 0424712

Component: Revolving door – alum. frame System: Exterior doors Subsystem: Special doors
 Task Description: Broken glass replacement – alum. frame revolving door
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.1330 hours Once every (H, A, L) years
 Trade: Metal Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Replace glass	0.102333	Glass	0.25	115.50
		Gaskets	0.25	22.05

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.102333	0.030700	0.133033
Material Cost \$			34.387500
Equipment Hours			0.133033

Task code: 0424713

Component: Revolving door – alum. frame System: Exterior doors Subsystem: Special doors
 Task Description: Repairs – alum. frame revolving door
 Unit of Measure: Count Frequency of Occurrence: H: 1.00 A: 2.00 L: 3.00
 Persons per Team: 1 Task Duration: 17.3332 hours Once every (H, A, L) years
 Trade: Metal Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Repair revolving door	13.333250	Weatherstripping	0.25	81.00
		Door sweep	0.25	38.30

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	13.333250	3.999975	17.333225
Material Cost \$			29.825000
Equipment Hours			17.333225

Task code: 0424715

Component: Revolving door – alum. frame System: Exterior doors Subsystem: Special doors
 Task Description: Replace aluminum frame revolving door
 Unit of Measure: Count Frequency of Occurrence: H: 40.00 A: 50.00 L: 60.00
 Persons per Team: 4 Task Duration: 19.9332 hours Once every (H, A, L) years
 Trade: Metal Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Remove revolving door	8.000000	alum. revolving door	1.00	15,500.00
Install new revolving door	53.333000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	61.333000	18.399900	79.732900
Material Cost \$			15,500.000000
Equipment Hours			19.933225

Task code: 0424812

Component: Steel access door System: Exterior doors Subsystem: Special doors
 Task Description: Broken glass replacement – steel access door
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0380 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Replace glass	0.029238	Glass (6sf)	1.00	16.50
		Gaskets	0.05	12.6

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.029238	0.008771	0.038009
Material Cost \$			17.13
Equipment Hours			0.038009

Task code: 0424813

Component: Steel access door System: Exterior doors Subsystem: Special doors
 Task Description: Repairs – steel access door
 Unit of Measure: Count Frequency of Occurrence: H: 1.00 A: 2.00 L: 3.00
 Persons per Team: 1 Task Duration: 0.4329 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Repair access door	0.333000	gaskets	0.05	12.60

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.333000	0.099900	0.432900
Material Cost \$			0.630000
Equipment Hours			0.432900

Task code: 0424815

Component: Steel access door System: Exterior doors Subsystem: Special doors
 Task Description: Replace steel access door
 Unit of Measure: Count Frequency of Occurrence: H: 40.00 A: 50.00 L: 60.00
 Persons per Team: 1 Task Duration: 2.6000 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Remove access door	1.000000	Steel access door (6sf)	1.00	60.5000
Install new access door	1.000000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	2.000000	0.600000	2.600000
Material Cost \$			60.500000
Equipment Hours			2.600000

Task code: 0424612

Component: Hangar door System: Exterior doors Subsystem: Special doors
 Task Description: Repairs - bi-fold hangar door
 Unit of Measure: SF Frequency of Occurrence: H: 9.00 A: 10.00 L: 11.00
 Persons per Team: 1 Task Duration: 0.0082 hours Once every (H, A, L) years
 Trade: Metal Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Remove/install mortise lock set	0.006340	mortise lock	1.00	0.585

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.006340	0.001902	0.008241
Material Cost \$			0.585000
Equipment Hours			0.008241

Task code: 0424613

Component: Hangar door System: Exterior doors Subsystem: Special doors
 Task Description: Refinish bi-fold hangar door
 Unit of Measure: SF Frequency of Occurrence: H: 4.00 A: 5.00 L: 6.00
 Persons per Team: 1 Task Duration: 0.0209 hours Once every (H, A, L) years
 Trade: Painting Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set-up & climb ladder	0.002100	Paint	4.00	0.08
Prepare door surface	0.002320			
Refinish door surface	0.011620			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.016040	0.004812	0.020852
Material Cost \$			0.320000
Equipment Hours			0.020852

Task code: 0424615

Component: Hangar door System: Exterior doors Subsystem: Special doors
 Task Description: Replace bi-fold hangar door
 Unit of Measure: SF Frequency of Occurrence: H: 30.00 A: 35.00 L: 40.00
 Persons per Team: 2 Task Duration: 0.0455 hours Once every (H, A, L) years
 Trade: Metal Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Remove/install hangar door	0.070000	bi-fold hangar door	1.00	15.45

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.070000	0.021000	0.091000
Material Cost \$			15.450000
Equipment Hours			0.045500

Task code: 0424616

Component: Hangar door System: Exterior doors Subsystem: Special doors
 Task Description: Refinish replaced bi-fold hangar door
 Unit of Measure: SF Frequency of Occurrence: H: 30.00 A: 35.00 L: 40.00
 Persons per Team: 1 Task Duration: 0.0079 hours Once every (H, A, L) years
 Trade: Painting Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set-up & climb ladder	0.000525	paint	1.00	0.0800
Prepare door surface	0.000580			
Refinish door surface	0.005000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.006105	0.001832	0.007937
Material Cost \$			0.080000
Equipment Hours			0.007937

Task code: 0424412

Component: Aluminum Transom System: Exterior doors Subsystem: Special doors
 Task Description: Broken glass replacement – alum. transom
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0426 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.002100	Glass	0.36 SF	1.15
Remove/replace glass	0.030700			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.032800	0.009840	0.042640
Material Cost \$			0.414000
Equipment Hours			0.042640

Task code: 0424413

Component: Aluminum Transom System: Exterior doors Subsystem: Special doors
 Task Description: Repairs – alum. transom
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.0658 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.016835	gaskets	0.05	12.60
Repair transom	0.016919	mullin/putty	0.05	2.00
Remove scaffolding	0.016835			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.050589	0.015177	0.065766
Material Cost \$			0.730000
Equipment Hours			0.065766

Task code: 0424415

Component: Aluminum Transom System: Exterior doors Subsystem: Special doors
 Task Description: Replace aluminum transom
 Unit of Measure: Count Frequency of Occurrence: H: 65.00 A: 75.00 L: 85.00
 Persons per Team: 1 Task Duration: 3.3063 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.336690	Transom	18.00 SF	11.25
Remove/replace transom	1.869958	Glass	18.00 SF	5.50
Remove scaffolding	0.336690			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	2.543338	0.763001	3.306339
Material Cost \$			301.500000
Equipment Hours			3.306339

Task code: 0424422

Component: Steel Transom System: Exterior doors Subsystem: Special doors
 Task Description: Broken glass replacement - steel transom
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0426 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.002100	Glass	0.36 SF	1.15
Remove/replace glass	0.030700			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.032800	0.009840	0.042640
Material Cost \$			0.414000
Equipment Hours			0.042640

Task code: 0424423

Component: Steel Transom System: Exterior doors Subsystem: Special doors
 Task Description: Repairs – steel transom
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.0658 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.016835	gaskets	0.05	12.60
Repair transom	0.016919	mullin/putty	0.05	2.00
Remove scaffolding	0.016835			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.050589	0.015177	0.065766
Material Cost \$			0.730000
Equipment Hours			0.065766

Task code: 0424424

Component: Steel Transom System: Exterior doors Subsystem: Special doors
 Task Description: Refinish – steel transom
 Unit of Measure: Count Frequency of Occurrence: H: 4.00 A: 5.00 L: 6.00
 Persons per Team: 1 Task Duration: 0.2833 hours Once every (H, A, L) years
 Trade: Painting Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.207000	Paint (in s.f.)	2.43	0.07
Paint	0.010886			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.217886	0.065366	0.283251
Material Cost \$			0.169799
Equipment Hours			0.283251

Task code: 0424425

Component: Steel Transom System: Exterior doors Subsystem: Special doors
 Task Description: Replace steel transom
 Unit of Measure: Count Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00
 Persons per Team: 1 Task Duration: 3.3063 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.336690	Transom	18.00	34.00
Remove/replace transom	1.869958	Glass	18.00	5.50
Remove scaffolding	0.336690			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	2.543338	0.763001	3.306339
Material Cost \$			711.000000
Equipment Hours			3.306339

Task code: 0424426

Component: Steel Transom System: Exterior doors Subsystem: Special doors
 Task Description: Refinish replaced steel transom
 Unit of Measure: Count Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00
 Persons per Team: 1 Task Duration: 0.2833 hours Once every (H, A, L) years
 Trade: Painting Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.207000	Paint (in s.f.)	2.43	0.07
Paint	0.010886			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.217886	0.065366	0.283251
Material Cost \$			0.169799
Equipment Hours			0.283251

Task code: 0424432

Component: Wood Transom System: Exterior doors Subsystem: Special doors
 Task Description: Broken glass replacement - wood transom
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0628 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.002100	Glass	0.36	1.15
Remove/replace glass	0.046200			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.048300	0.014490	0.062790
Material Cost \$			0.414000
Equipment Hours			0.062790

Task code: 0424433

Component: Wood Transom System: Exterior doors Subsystem: Special doors
 Task Description: Repairs - wood transom
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.0658 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.016835	gaskets	0.05	12.60
Repair transom	0.016919	mullin/putty	0.05	2.00
Remove scaffolding	0.016835			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.050589	0.015177	0.065766
Material Cost \$			0.730000
Equipment Hours			0.065766

Task code: 0424434

Component: Wood Transom System: Exterior doors Subsystem: Special doors
 Task Description: Refinish - wood transom
 Unit of Measure: Count Frequency of Occurrence: H: 4.00 A: 5.00 L: 6.00
 Persons per Team: 1 Task Duration: 0.3176 hours Once every (H, A, L) years
 Trade: Painting Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.207000	Paint (in s.f.)	2.43	0.07
Paint	0.037286			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.244286	0.073286	0.317571
Material Cost \$			0.169799
Equipment Hours			0.317571

Task code: 0424435

Component: Wood Transom System: Exterior doors Subsystem: Special doors
 Task Description: Replace wood transom
 Unit of Measure: Count Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00
 Persons per Team: 1 Task Duration: 3.3063 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.336690	Transom	18.00	34.00
Remove/replace transom	1.869958	Glass	18.00	5.50
Remove scaffolding	0.336690			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	2.543338	0.763001	3.306339
Material Cost \$			711.000000
Equipment Hours			3.306339

Task code: 0424436

Component: Wood Transom System: Exterior doors Subsystem: Special doors
 Task Description: Refinish replaced wood transom
 Unit of Measure: Count Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00
 Persons per Team: 1 Task Duration: 0.2833 hours Once every (H, A, L) years
 Trade: Painting Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.207000	Paint (in s.f.)	2.43	0.07
Paint	0.037286			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.244286	0.073286	0.317571
Material Cost \$			0.169799
Equipment Hours			0.317571

Task code: 0424442

Component: Plastic Transom System: Exterior doors Subsystem: Special doors
 Task Description: Broken glass replacement - plastic transom
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0269 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.002100	Glass	0.36	1.15
Remove/replace glass	0.018600			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.020700	0.006210	0.026910
Material Cost \$			0.414000
Equipment Hours			0.026910

Task code: 0424443

Component: Plastic Transom System: Exterior doors Subsystem: Special doors
 Task Description: Repairs – plastic transom
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.0658 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.016835	gaskets	0.05	12.60
Repair transom	0.016919	mullin/putty	0.05	2.00
Remove scaffolding	0.016835			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.050589	0.015177	0.065766
Material Cost \$			0.730000
Equipment Hours			0.065766

Task code: 0424445

Component: Plastic Transom System: Exterior doors Subsystem: Special doors
 Task Description: Replace plastic transom
 Unit of Measure: Count Frequency of Occurrence: H: 65.00 A: 75.00 L: 85.00
 Persons per Team: 1 Task Duration: 3.3063 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.336690	Transom	18.00	11.25
Remove/replace transom	1.869958	Glass	18.00	5.50
Remove scaffolding	0.336690			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	2.543338	0.763001	3.306339
Material Cost \$			301.500000
Equipment Hours			3.306339

Task code: 0424512

Component: Aluminum sidelite System: Exterior doors Subsystem: Special doors
 Task Description: Broken glass replacement – Alum. sidelite
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0426 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.002100	Glass	0.21	1.15
Remove/replace glass	0.030700			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.032800	0.009840	0.042640
Material Cost \$			0.241500
Equipment Hours			0.042640

Task code: 0424513

Component: Aluminum sidelite System: Exterior doors Subsystem: Special doors
 Task Description: Repairs – alum. sidelite
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.0658 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.016835	gaskets	0.05	12.60
Repair sidelite	0.016919	mullin/putty	0.05	2.00
Remove scaffolding	0.016835			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.050589	0.015177	0.065766
Material Cost \$			0.730000
Equipment Hours			0.065766

Task code: 0424515

Component: Aluminum sidelite System: Exterior doors Subsystem: Special doors
 Task Description: Replace alum. sidelite
 Unit of Measure: Count Frequency of Occurrence: H: 65.00 A: 75.00 L: 85.00
 Persons per Team: 1 Task Duration: 3.3063 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.336690	sidelite	10.50	11.25
Remove/replace sidelite	1.869958	Glass	10.50	5.50
Remove scaffolding	0.336690			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	2.543338	0.763001	3.306339
Material Cost \$			175.875000
Equipment Hours			3.306339

Task code: 0424522

Component: Steel sidelite System: Exterior doors Subsystem: Special doors
 Task Description: Broken glass replacement - steel sidelite
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0426 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.002100	Glass	0.21	1.15
Remove/replace glass	0.030700			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.032800	0.009840	0.042640
Material Cost \$			0.241500
Equipment Hours			0.042640

Task code: 0424523

Component: Steel sidelite System: Exterior doors Subsystem: Special doors
 Task Description: Repairs – steel sidelite
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.0658 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.016835	gaskets	0.05	12.60
Repair sidelite	0.016919	mullin/putty	0.05	2.00
Remove scaffolding	0.016835			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.050589	0.015177	0.065766
Material Cost \$			0.730000
Equipment Hours			0.065766

Task code: 0424524

Component: Steel sidelite System: Exterior doors Subsystem: Special doors
 Task Description: Refinish – steel sidelite
 Unit of Measure: Count Frequency of Occurrence: H: 4.00 A: 5.00 L: 6.00
 Persons per Team: 1 Task Duration: 0.2774 hours Once every (H, A, L) years
 Trade: Painting Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.207000	Paint (in s.f.)	1.42	0.07
Paint	0.006350			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.213350	0.064005	0.277355
Material Cost \$			0.099050
Equipment Hours			0.277355

Task code: 0424525

Component: Steel sidelite System: Exterior doors Subsystem: Special doors
 Task Description: Replace steel sidelite
 Unit of Measure: Count Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00
 Persons per Team: 1 Task Duration: 3.3063 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.336690	Stl. sidelite	10.5	34.00
Remove/replace sidelite	1.869958	Glass	10.5	5.50
Remove scaffolding	0.336690			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	2.543338	0.763001	3.306339
Material Cost \$			414.750000
Equipment Hours			3.306339

Task code: 0424526

Component: Steel sidelite System: Exterior doors Subsystem: Special doors
 Task Description: Refinish replaced steel sidelite
 Unit of Measure: Count Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00
 Persons per Team: 1 Task Duration: 0.2774 hours Once every (H, A, L) years
 Trade: Painting Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.207000	Paint (in s.f.)	1.415	0.07
Paint	0.006350			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.213350	0.064005	0.277355
Material Cost \$			0.099050
Equipment Hours			0.277355

Task code: 0424532

Component: Wood sidelite System: Exterior doors Subsystem: Special doors
 Task Description: Broken glass replacement – wood sidelite
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0628 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.002100	Glass	0.21	1.15
Remove/replace glass	0.046200			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.048300	0.014490	0.062790
Material Cost \$			0.241500
Equipment Hours			0.062790

Task code: 0424533

Component: Wood sidelite System: Exterior doors Subsystem: Special doors
 Task Description: Repairs – wood sidelite
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.0658 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.016835	gaskets	0.05	12.60
Repair sidelite	0.016919	mullin/putty	0.05	2.00
Remove scaffolding	0.016835			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.050589	0.015177	0.065766
Material Cost \$			0.730000
Equipment Hours			0.065766

Task code: 0424534

Component: Wood sidelite System: Exterior doors Subsystem: Special doors
 Task Description: Refinish - wood sidelite
 Unit of Measure: Count Frequency of Occurrence: H: 4.00 A: 5.00 L: 6.00
 Persons per Team: 1 Task Duration: 0.2974 hours Once every (H, A, L) years
 Trade: Painting Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.207000	Paint (in s.f.)	1.42	0.07
Paint	0.021750			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.228750	0.068625	0.297375
Material Cost \$			0.099050
Equipment Hours			0.297375

Task code: 0424535

Component: Wood sidelite System: Exterior doors Subsystem: Special doors
 Task Description: Replace wood sidelite
 Unit of Measure: Count Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00
 Persons per Team: 1 Task Duration: 3.3063 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.336690	Wood sidelite	10.5	34.00
Remove/replace sidelite	1.869958	Glass	10.5	5.50
Remove scaffolding	0.336690			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	2.543338	0.763001	3.306339
Material Cost \$			414.750000
Equipment Hours			3.306339

Task code: 0424536

Component: Wood sidelite System: Exterior doors Subsystem: Special doors
 Task Description: Refinish – wood sidelite
 Unit of Measure: Count Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00
 Persons per Team: 1 Task Duration: 0.2974 hours Once every (H, A, L) years
 Trade: Painting Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.207000	Paint (in s.f.)	1.415	0.07
Paint	0.021750			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.228750	0.068625	0.297375
Material Cost \$			0.099050
Equipment Hours			0.297375

Task code: 0424542

Component: Plastic sidelite System: Exterior doors Subsystem: Special doors
 Task Description: Broken glass replacement – plastic sidelite
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0269 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.002100	Glass	0.21	1.15
Remove/replace glass	0.018600			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.020700	0.006210	0.026910
Material Cost \$			0.241500
Equipment Hours			0.026910

Task code: 0424543

Component: Plastic sidelite System: Exterior doors Subsystem: Special doors
 Task Description: Repairs – plastic sidelite
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.0658 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.016835	gaskets	0.05	12.60
Repair sidelite	0.016919	mullin/putty	0.05	2.00
Remove scaffolding	0.016835			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.050589	0.015177	0.065766
Material Cost \$			0.730000
Equipment Hours			0.065766

Task code: 0424545

Component: Plastic sidelite System: Exterior doors Subsystem: Special doors
 Task Description: Replace plastic sidelite
 Unit of Measure: Count Frequency of Occurrence: H: 65.00 A: 75.00 L: 85.00
 Persons per Team: 1 Task Duration: 3.3063 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.336690	Plastic sidelite	10.50	11.25
Remove/replace transom	1.869958	Glass	10.50	5.50
Remove scaffolding	0.336690			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	2.543338	0.763001	3.306339
Material Cost \$			175.875000
Equipment Hours			3.306339

Task code: 0426313

Component: Wood storm door System: Exterior closure Subsystem: Screen/storm doors
 Task Description: Repair – wood storm door
 Unit of Measure: Count Frequency of Occurrence: H: 4.00 A: 5.00 L: 6.00
 Persons per Team: 1 Task Duration: 1.2636 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Remove/install weatherstripping	0.512500	Weatherstripping	1.00	25.00
Remove/install door closer	0.380200	Door closer	0.50	30.00
Pivot hinges	0.079300	Pivot hinge (pair)	0.50	16.00
		Wood strip	1.00	5.00

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.972000	0.291600	1.263600
Material Cost \$			48.000000
Equipment Hours			1.263600

Task code: 0426314

Component: Wood storm door System: Exterior closure Subsystem: Screen/storm doors
 Task Description: refinish wood storm door
 Unit of Measure: Count Frequency of Occurrence: H: 3.00 A: 4.00 L: 5.00
 Persons per Team: 1 Task Duration: 0.3136 hours Once every (H, A, L) years
 Trade: painting Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Prepare door surface	0.053360	Paint (in s.f.)	46.00	0.06
Refinish storm door	0.187909			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.241269	0.072381	0.313650
Material Cost \$			2.760000
Equipment Hours			0.313650

Task code: 0426315

Component: Wood storm door System: Exterior closure Subsystem: Screen/storm doors
 Task Description: Replace wood storm door
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 2 Task Duration: 1.1318 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Remove/replace door	1.741300	Pine storm door	1	247.00

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	1.741300	0.522390	2.263690
Material Cost \$			247.000000
Equipment Hours			1.131845

Task code: 0426316

Component: Wood storm door System: Exterior closure Subsystem: Screen/storm doors
 Task Description: Refinish replaced wood storm door
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.3236 hours Once every (H, A, L) years
 Trade: Painting Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Prepare door surface	0.053860	Paint (in s.f.)	46.00	0.06
Refinish storm door	0.195040			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.248900	0.074670	0.323570
Material Cost \$			2.760000
Equipment Hours			0.323570

Exterior Windows

Task code: 0431A11

Component: Tri. pane alum. oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Broken glass replacement – 1st floor
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0628hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.002100	Glass (1% in s.f.)	0.36	1.15
Remove/replace glass	0.046200			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.048300	0.014490	0.062790
Material Cost \$			0.414000
Equipment Hours			0.062790

Task code: 0431A12

Component: Tri. pane alum. oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Repair – 1st floor
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.0658 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.016835	gaskets	0.05	12.60
Repair window	0.016919	mullin/putty	0.05	2.00
Remove scaffolding	0.016835	misc. hardware	0.005	256.00

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.050589	0.015177	0.065766
Material Cost \$			2.010000
Equipment Hours			0.065766

Task code: 0431A15

Component: Tri. pane alum. oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Replace window -1st floor
 Unit of Measure: Count Frequency of Occurrence: H: 65.00 A: 75.00 L: 85.00
 Persons per Team: 1 Task Duration: 3.3063 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.336690	window (in s.f.)	12.00	15.00
Remove/replace window	1.869958	Glass	12.00	6.50
Remove scaffolding	0.336690			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	2.543338	0.763001	3.306339
Material Cost \$			258.000000
Equipment Hours			3.306339

Task code: 0431A21

Component: Tri. pane alum. oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Broken glass replacement - 2nd floor
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0772 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffolding	0.006600	Glass (1% in s.f.)	0.36	1.15
Remove/replace glass	0.046200			
Remove scaffolding	0.006600			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.059400	0.017820	0.077220
Material Cost \$			0.414000
Equipment Hours			0.077220

Task code: 0431A22

Component: Tri. pane alum. oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Repair - 2nd floor
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.1101 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.033039	gaskets	0.05	12.60
Repair window	0.018610	mullin/putty	0.05	2.00
Remove scaffolding	0.033039	misc. hardware	0.005	256.00

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.084688	0.025406	0.110094
Material Cost \$			2.010000
Equipment Hours			0.110094

Task code: 0431A25

Component: Tri. pane alum. oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Replace window -2nd floor
 Unit of Measure: Count Frequency of Occurrence: H: 65.00 A: 75.00 L: 85.00
 Persons per Team: 1 Task Duration: 4.2178 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.660780	window (in s.f.)	12.00	15.00
Remove/replace window	1.922914	Glass	12.00	6.50
Remove scaffolding	0.660780			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	3.244474	0.973342	4.217816
Material Cost \$			258.000000
Equipment Hours			4.217816

Task code: 0431A31

Component: Tri. pane alum. oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Broken glass replacement – 3rd floor
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0848 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffolding	0.009500	Glass (1% in s.f.)	0.36	1.15
Remove/replace glass	0.046200			
Remove scaffolding	0.009500			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.065200	0.019560	0.084760
Material Cost \$			0.414000
Equipment Hours			0.084760

Task code: 0431A32

Component: Tri. pane alum. oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Repair – 3rd floor
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.1544 hours - Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.049244	gaskets	0.05	12.60
Repair window	0.020302	mullin/putty	0.05	2.00
Remove scaffolding	0.049244	misc. hardware	0.005	256.00

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.118790	0.035637	0.154427
Material Cost \$			2.010000
Equipment Hours			0.154427

Task code: 0431A35

Component: Tri. pane alum. oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Replace window -3rd floor
 Unit of Measure: Count Frequency of Occurrence: H: 65.00 A: 75.00 L: 85.00
 Persons per Team: 1 Task Duration: 5.1293 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.984870	window (in s.f.)	12.00	15.00
Remove/replace window	1.975869	Glass	12.00	6.50
Remove scaffolding	0.984870			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	3.945609	1.183683	5.129292
Material Cost \$			258.000000
Equipment Hours			5.129292

Task code: 0431B11

Component: Tri. pane plastic oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Broken glass replacement - 1st floor
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0390 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.002100	Glass (1% in s.f.)	0.36	1.15
Remove/replace glass	0.027900			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.030000	0.009000	0.039000
Material Cost \$			0.414000
Equipment Hours			0.039000

Task code: 0431B12

Component: Tri. pane plastic oper. window System: Exterior closure Subsystem: Exterior windows

Task Description: Repair - 1st floor

Unit of Measure: Count

Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00

Persons per Team: 1

Task Duration: 0.0658 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.016835	gaskets	0.05	12.60
Repair window	0.016919	mullin/putty	0.05	2.00
Remove scaffolding	0.016835	misc. hardware	0.005	256.00

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.050589	0.015177	0.065766
Material Cost \$			2.010000
Equipment Hours			0.065766

Task code: 0431B15

Component: Tri. pane plastic oper. window System: Exterior closure Subsystem: Exterior windows

Task Description: Replace window -1st floor

Unit of Measure: Count

Frequency of Occurrence: H: 65.00 A: 75.00 L: 85.00

Persons per Team: 1

Task Duration: 3.3063 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.336690	window (in s.f.)	12.00	18.67
Remove/replace window	1.869958	Glass	12.00	6.50
Remove scaffolding	0.336690			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	2.543338	0.763001	3.306339
Material Cost \$			302.040000
Equipment Hours			3.306339

Task code: 0431B21

Component: Tri. pane plastic oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Broken glass replacement – 2nd floor
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0534 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffolding	0.006600	Glass (1% in s.f.)	0.36	1.15
Remove/replace glass	0.027900			
Remove scaffolding	0.006600			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.041100	0.012330	0.053430
Material Cost \$			0.414000
Equipment Hours			0.053430

Task code: 0431B22

Component: Tri. pane plastic oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Repair – 2nd floor
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.1101 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.033039	gaskets	0.05	12.60
Repair window	0.018610	mullin/putty	0.05	2.00
Remove scaffolding	0.033039	misc. hardware	0.005	256.00

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.084688	0.025406	0.110094
Material Cost \$			2.010000
Equipment Hours			0.110094

Task code: 0431B25

Component: Tri. pane plastic oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Replace window -2nd floor
 Unit of Measure: Count Frequency of Occurrence: H: 65.00 A: 75.00 L: 85.00
 Persons per Team: 1 Task Duration: 4.2178 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.660780	window (in s.f.)	12.00	18.67
Remove/replace window	1.922914	Glass	12.00	6.50
Remove scaffolding	0.660780			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	3.244474	0.973342	4.217816
Material Cost \$			302.040000
Equipment Hours			4.217816

Task code: 0431B31

Component: Tri. pane plastic oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Broken glass replacement - 3rd floor
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0610 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffolding	0.009500	Glass (1% in s.f.)	0.36	1.15
Remove/replace glass	0.027900			
Remove scaffolding	0.009500			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.046900	0.014070	0.060970
Material Cost \$			0.414000
Equipment Hours			0.060970

Task code: 0431B32

Component: Tri. pane plastic oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Repair - 3rd floor
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.1544 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.049244	gaskets	0.05	12.60
Repair window	0.020302	mullin/putty	0.05	2.00
Remove scaffolding	0.049244	misc. hardware	0.005	256.00

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.118790	0.035637	0.154427
Material Cost \$			2.010000
Equipment Hours			0.154427

Task code: 0431B35

Component: Tri. pane plastic oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Replace window -3rd floor
 Unit of Measure: Count Frequency of Occurrence: H: 65.00 A: 75.00 L: 85.00
 Persons per Team: 1 Task Duration: 5.1293 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.984870	window (in s.f.)	12.00	18.67
Remove/replace window	1.975869	Glass	12.00	6.50
Remove scaffolding	0.984870			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	3.945609	1.183683	5.129292
Material Cost \$			302.040000
Equipment Hours			5.129292

Task code: 0431C11

Component: Tri. pane steel oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Broken glass replacement – 1st floor
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0628 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.002100	Glass (1% in s.f.)	0.36	1.15
Remove/replace glass	0.046200			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.048300	0.014490	0.062790
Material Cost \$			0.414000
Equipment Hours			0.062790

Task code: 0431C12

Component: Tri. pane steel oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Repair – 1st floor
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.0658 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.016835	gaskets	0.05	12.60
Repair window	0.016919	mullin/putty	0.05	2.00
Remove scaffolding	0.016835	misc. hardware	0.005	260.00

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.050589	0.015177	0.065766
Material Cost \$			2.030000
Equipment Hours			0.065766

Task code: 0431C13

Component: Tri. pane steel oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Refinish window -1st floor
 Unit of Measure: Count Frequency of Occurrence: H: 3.00 A: 5.00 L: 7.00
 Persons per Team: 1 Task Duration: 0.2856 hours Once every (H, A, L) years
 Trade: painting Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place/remove ladder	0.207000	paint (in s.f.)	2.83	0.07
Paint	0.012700			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.219700	0.065910	0.285610
Material Cost \$			0.198100
Equipment Hours			0.285610

Task code: 0431C15

Component: Tri. pane steel oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Replace window -1st floor
 Unit of Measure: Count Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00
 Persons per Team: 1 Task Duration: 3.3063 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.336690	window (in s.f.)	12.00	34.00
Remove/replace window	1.869958	Glass	12.00	6.50
Remove scaffolding	0.336690			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	2.543338	0.763001	3.306339
Material Cost \$			486.000000
Equipment Hours			3.306339

Task code: 0431C16

Component: Tri. pane steel oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Refinish replaced window -1st floor
 Unit of Measure: Count Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00
 Persons per Team: 1 Task Duration: 0.2856 hours Once every (H, A, L) years
 Trade: painting Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place/remove ladder	0.207000	paint (in s.f.)	2.83	0.07
Paint	0.012700			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.219700	0.065910	0.285610
Material Cost \$			0.198100
Equipment Hours			0.285610

Task code: 0431C21

Component: Tri. pane steel oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Broken glass replacement - 2nd floor
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0772 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffolding	0.006600	Glass (1% in s.f.)	0.36	1.15
Remove/replace glass	0.046200			
Remove scaffolding	0.006600			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.059400	0.017820	0.077220
Material Cost \$			0.414000
Equipment Hours			0.077220

Task code: 0431C22

Component: Tri. pane steel oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Repair – 2nd floor
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.1101 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.033039	gaskets	0.05	12.60
Repair window	0.018610	mullin/putty	0.05	2.00
Remove scaffolding	0.033039	misc. hardware	0.005	256.00

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.084688	0.025406	0.110094
Material Cost \$			2.010000
Equipment Hours			0.110094

Task code: 0431C23

Component: Tri. pane steel oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Refinish window – 2nd floor
 Unit of Measure: Count Frequency of Occurrence: H: 3.00 A: 5.00 L: 7.00
 Persons per Team: 1 Task Duration: 1.7346 hours Once every (H, A, L) years
 Trade: painting Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffolding	0.660800	paint (in s.f.)	2.83	0.07
Paint	0.012700			
Remove scaffolding	0.660800			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	1.334300	0.400290	1.734590
Material Cost \$			0.198100
Equipment Hours			1.734590

Task code: 0431C25

Component: Tri. pane steel oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Replace window -2nd floor
 Unit of Measure: Count Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00
 Persons per Team: 1 Task Duration: 4.2178 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.660780	window (in s.f.)	12.00	34.00
Remove/replace window	1.922914	Glass	12.00	6.50
Remove scaffolding	0.660780			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	3.244474	0.973342	4.217816
Material Cost \$			486.000000
Equipment Hours			4.217816

Task code: 0431C26

Component: Tri. pane steel oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Refinish window -2nd floor
 Unit of Measure: Count Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00
 Persons per Team: 1 Task Duration: 1.7346 hours Once every (H, A, L) years
 Trade: painting Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffolding	0.660800	paint (in s.f.)	2.83	0.07
Paint	0.012700			
Remove scaffolding	0.660800			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	1.334300	0.400290	1.734590
Material Cost \$			0.198100
Equipment Hours			1.734590

Task code: 0431C31

Component: Tri. pane steel oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Broken glass replacement – 3rd floor
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0848 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffolding	0.009500	Glass (1% in s.f.)	0.36	1.15
Remove/replace glass	0.046200			
Remove scaffolding	0.009500			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.065200	0.019560	0.084760
Material Cost \$			0.414000
Equipment Hours			0.084760

Task code: 0431C32

Component: Tri. pane steel oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Repair – 3rd floor
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.1544 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.049244	gaskets	0.05	12.60
Repair window	0.020302	mullin/putty	0.05	2.00
Remove scaffolding	0.049244	misc. hardware	0.005	256.00

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.118790	0.035637	0.154427
Material Cost \$			2.010000
Equipment Hours			0.154427

Task code: 0431C33

Component: Tri. pane steel oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Refinish window -3rd floor
 Unit of Measure: Count Frequency of Occurrence: H: 3.00 A: 5.00 L: 7.00
 Persons per Team: 1 Task Duration: 2.5773 hours Once every (H, A, L) years
 Trade: painting Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffolding	0.984900	paint (in s.f.)	2.83	0.07
Paint	0.012700			
Remove scaffolding	0.984900			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	1.982500	0.594750	2.577250
Material Cost \$			0.198100
Equipment Hours			2.577250

Task code: 0431C35

Component: Tri. pane steel oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Replace window -3rd floor
 Unit of Measure: Count Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00
 Persons per Team: 1 Task Duration: 5.1293 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.984870	window (in s.f.)	12.00	34.00
Remove/replace window	1.975869	Glass	12.00	6.50
Remove scaffolding	0.984870			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	3.945609	1.183683	5.129292
Material Cost \$			486.000000
Equipment Hours			5.129292

Task code: 0431C36

Component: Tri. pane steel oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Refinish window -3rd floor
 Unit of Measure: Count Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00
 Persons per Team: 1 Task Duration: 2.5773 hours Once every (H, A, L) years
 Trade: painting Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffolding	0.984900	paint (in s.f.)	2.83	0.07
Paint	0.012700			
Remove scaffolding	0.984900			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	1.982500	0.594750	2.577250
Material Cost \$			0.198100
Equipment Hours			2.577250

Task code: 0431D11

Component: Tri. pane wood oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Broken glass replacement - 1st floor
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0390 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.002100	Glass (1% in s.f.)	0.36	1.15
Remove/replace glass	0.027900			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.030000	0.009000	0.039000
Material Cost \$			0.414000
Equipment Hours			0.039000

Task code: 0431D12

Component: Tri. pane wood oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Repair - 1st floor
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.0658 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.016835	gaskets	0.05	12.60
Repair window	0.016919	mullin/putty	0.05	2.00
Remove scaffolding	0.016835	misc. hardware	0.005	256.00

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.050589	0.015177	0.065766
Material Cost \$			2.010000
Equipment Hours			0.065766

Task code: 0431D13

Component: Tri. pane wood oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Refinish window -1st floor
 Unit of Measure: Count Frequency of Occurrence: H: 3.00 A: 5.00 L: 7.00
 Persons per Team: 1 Task Duration: 0.3020 hours Once every (H, A, L) years
 Trade: painting Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place/remove ladder	0.207000	paint (in s.f.)	2.83	0.07
Paint	0.025300			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.232300	0.069690	0.301990
Material Cost \$			0.198100
Equipment Hours			0.301990

Task code: 0431D15

Component: Tri. pane wood oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Replace window -1st floor
 Unit of Measure: Count Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00
 Persons per Team: 1 Task Duration: 3.3063 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.336690	window (in s.f.)	12.00	11.91
Remove/replace window	1.869958	Glass	12.00	6.50
Remove scaffolding	0.336690			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	2.543338	0.763001	3.306339
Material Cost \$			220.920000
Equipment Hours			3.306339

Task code: 0431D16

Component: Tri. pane wood oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Refinish replaced window -1st floor
 Unit of Measure: Count Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00
 Persons per Team: 1 Task Duration: 0.3020 hours Once every (H, A, L) years
 Trade: painting Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place/remove ladder	0.207000	paint (in s.f.)	2.83	0.07
Paint	0.025300			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.232300	0.069690	0.301990
Material Cost \$			0.198100
Equipment Hours			0.301990

Task code: 0431D21

Component: Tri. pane wood oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Broken glass replacement – 2nd floor
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0534 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffolding	0.006600	Glass (1% in s.f.)	0.36	1.15
Remove/replace glass	0.027900			
Remove scaffolding	0.006600			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.041100	0.012330	0.053430
Material Cost \$			0.414000
Equipment Hours			0.053430

Task code: 0431D22

Component: Tri. pane wood oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Repair – 2nd floor
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.1101 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.033039	gaskets	0.05	12.60
Repair window	0.018610	mullin/putty	0.05	2.00
Remove scaffolding	0.033039	misc. hardware	0.005	256.00

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.084688	0.025406	0.110094
Material Cost \$			2.010000
Equipment Hours			0.110094

Task code: 0431D23

Component: Tri. pane wood oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Refinish window -2nd floor
 Unit of Measure: Count Frequency of Occurrence: H: 3.00 A: 5.00 L: 7.00
 Persons per Team: 1 Task Duration: 1.7510 hours Once every (H, A, L) years
 Trade: painting Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffolding	0.660800	paint (in s.f.)	2.83	0.07
Paint	0.025300			
Remove scaffolding	0.660800			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	1.346900	0.404070	1.750970
Material Cost \$			0.198100
Equipment Hours			1.750970

Task code: 0431D25

Component: Tri. pane wood oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Replace window -2nd floor
 Unit of Measure: Count Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00
 Persons per Team: 1 Task Duration: 4.2178 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.660780	window (in s.f.)	12.00	11.91
Remove/replace window	1.922914	Glass	12.00	6.50
Remove scaffolding	0.660780			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	3.244474	0.973342	4.217816
Material Cost \$			220.920000
Equipment Hours			4.217816

Task code: 0431D26

Component: Tri. pane wood oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Refinish window -2nd floor
 Unit of Measure: Count Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00
 Persons per Team: 1 Task Duration: 1.7510 hours Once every (H, A, L) years
 Trade: painting Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffolding	0.660800	paint (in s.f.)	2.83	0.07
Paint	0.025300			
Remove scaffolding	0.660800			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	1.346900	0.404070	1.750970
Material Cost \$			0.198100
Equipment Hours			1.750970

Task code: 0431D31

Component: Tri. pane wood oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Broken glass replacement - 3rd floor
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0610 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffolding	0.009500	Glass (1% in s.f.)	0.36	1.15
Remove/replace glass	0.027900			
Remove scaffolding	0.009500			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.046900	0.014070	0.060970
Material Cost \$			0.414000
Equipment Hours			0.060970

Task code: 0431D32

Component: Tri. pane wood oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Repair - 3rd floor
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 0.1544 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.049244	gaskets	0.05	12.60
Repair window	0.020302	mullin/putty	0.05	2.00
Remove scaffolding	0.049244	misc. hardware	0.005	256.00

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.118790	0.035637	0.154427
Material Cost \$			2.010000
Equipment Hours			0.154427

Task code: 0431D33

Component: Tri. pane wood oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Refinish window -3rd floor
 Unit of Measure: Count Frequency of Occurrence: H: 3.00 A: 5.00 L: 7.00
 Persons per Team: 1 Task Duration: 2.5936 hours Once every (H, A, L) years
 Trade: painting Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffolding	0.984900	paint (in s.f.)	2.83	0.07
Paint	0.025300			
Remove scaffolding	0.984900			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	1.995100	0.598530	2.593630
Material Cost \$			0.198100
Equipment Hours			2.593630

Task code: 0431D35

Component: Tri. pane wood oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Replace window -3rd floor
 Unit of Measure: Count Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00
 Persons per Team: 1 Task Duration: 5.1293 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.984870	window (in s.f.)	12.00	11.91
Remove/replace window	1.975869	Glass	12.00	6.50
Remove scaffolding	0.984870			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	3.945609	1.183683	5.129292
Material Cost \$			220.920000
Equipment Hours			5.129292

Task code: 0431D36

Component: Tri. pane wood oper. window System: Exterior closure Subsystem: Exterior windows
 Task Description: Refinish window -3rd floor
 Unit of Measure: Count Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00
 Persons per Team: 1 Task Duration: 2.5936 hours Once every (H, A, L) years
 Trade: painting Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffolding	0.984900	paint (in s.f.)	2.83	0.07
Paint	0.025300			
Remove scaffolding	0.984900			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	1.995100	0.598530	2.593630
Material Cost \$			0.198100
Equipment Hours			2.593630

Task code: 0434A11

Component: Plastic storm window System: Exterior closure Subsystem: Window cov. Spec. ext.
 Task Description: Broken glass replacement – 1st floor
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0227hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place and remove ladder	0.002100	Glass (1% in s.f.)	0.12	1.15
Remove/replace glass	0.015370			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.017470	0.005241	0.022711
Material Cost \$			0.138000
Equipment Hours			0.022711

Task code: 0434A12

Component: Plastic storm window System: Exterior closure Subsystem: Window cov. Spec. ext.
 Task Description: Repair – 1st floor
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 2.2664 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, remove ladder	0.207000	putty/mastic	34.00	0.01
Repair window	1.536400			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	1.743400	0.523020	2.266420
Material Cost \$			0.340000
Equipment Hours			2.266420

Task code: 0434A15

Component: Plastic storm window System: Exterior closure Subsystem: Window cov. Spec. ext.
 Task Description: Replace window -1st floor
 Unit of Measure: Count Frequency of Occurrence: H: 65.00 A: 75.00 L: 85.00
 Persons per Team: 1 Task Duration: 1.7340 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.336690	window	1	70.00
Remove/replace window	0.660480			
Remove scaffolding	0.336690			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	1.333860	0.400158	1.734018
Material Cost \$			70.000000
Equipment Hours			1.734018

Task code: 0434A21

Component: Plastic storm window System: Exterior closure Subsystem: Window cov. Spec. ext.
 Task Description: Broken glass replacement - 2nd floor
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0394 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffolding	0.006700	Glass (1% in s.f.)	0.12	1.15
Remove/replace glass	0.016907			
Remove scaffolding	0.006700			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.030307	0.009092	0.039399
Material Cost \$			0.138000
Equipment Hours			0.039399

Task code: 0434A22

Component: Plastic storm window System: Exterior closure Subsystem: Window cov. Spec. ext.
 Task Description: Repair - 2nd floor
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 3.9159 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.660780	putty/mastic (in s.f.)	34.00	0.01
Repair window	1.690700			
Remove scaffolding	0.660780			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	3.012260	0.903678	3.915938
Material Cost \$			0.340000
Equipment Hours			3.915938

Task code: 0434A23

Component: Plastic storm window System: Exterior closure Subsystem: Window cov. Spec. ext.
 Task Description: Replace window -2nd floor
 Unit of Measure: Count Frequency of Occurrence: H: 65.00 A: 75.00 L: 85.00
 Persons per Team: 1 Task Duration: 2.6625 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.660780	window	1	70.00
Remove/replace window	0.726528			
Remove scaffolding	0.660780			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	2.048088	0.614426	2.662514
Material Cost \$			70.000000
Equipment Hours			2.662514

Task code: 0434A31

Component: Plastic storm window System: Exterior closure Subsystem: Window cov. Spec. ext.
 Task Description: Broken glass replacement - 3rd floor
 Unit of Measure: Count Frequency of Occurrence: H: 0.90 A: 1.00 L: 1.10
 Persons per Team: 1 Task Duration: 0.0495 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Place scaffolding	0.009800	Glass (1% in s.f.)	0.12	1.15
Remove/replace glass	0.018440			
Remove scaffolding	0.009800			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.038040	0.011412	0.049452
Material Cost \$			0.138000
Equipment Hours			0.049452

Task code: 0434A32

Component: Plastic storm window System: Exterior closure Subsystem: Window cov. Spec. ext.
 Task Description: Repair - 3rd floor
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 4.9584 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Setup, climb, scaffolding	0.984870	putty/mastic (in s.f.)	34.00	0.01
Repair window	1.844400			
Remove scaffolding	0.984870			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	3.814140	1.144242	4.958382
Material Cost \$			0.340000
Equipment Hours			4.958382

Task code: 0434A35

Component: Plastic storm window System: Exterior closure Subsystem: Window cov. Spec. ext.

Task Description: Replace window -3rd floor

Unit of Measure: Count

Frequency of Occurrence: H: 65.00 A: 75.00 L: 85.00

Persons per Team: 1

Task Duration: 3.5910 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Set up, climb scaffolding	0.984870	window	1.00	70.00
Remove/replace window	0.792576			
Remove scaffolding	0.984870			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	2.762316	0.828695	3.591011
Material Cost \$			70.000000
Equipment Hours			3.591011

0432000 Fixed window
 0432A00 Triple pane Alum. fixed window
 0432B00 Triple pane plastic fixed window
 0432C00 Triple pane steel fixed window
 0432D00 Triple pane wood fixed window

The data for fixed windows is same as for operable windows.

Use Task code:

0431A11 for 0432A11
 0431A12 for 0432A12
 0431A13 for 0432A13
 0431A21 for 0432A21
 0431A22 for 0432A22
 0431A23 for 0432A23
 0431A31 for 0432A31
 0431A32 for 0432A32
 0431A33 for 0432A33

0431B11 for 0432B11
 0431B12 for 0432B12
 0431B13 for 0432B13
 0431B21 for 0432B21
 0431B22 for 0432B22
 0431B23 for 0432B23
 0431B31 for 0432B31
 0431B32 for 0432B32

0431B33	for	0432B33
0431C11	for	0432C11
0431C12	for	0432C12
0431C13	for	0432C13
0431C14	for	0432C14
0431C15	for	0432C15
0431C21	for	0432C21
0431C22	for	0432C22
0431C23	for	0432C23
0431C24	for	0432C24
0431C25	for	0432C25
0431C31	for	0432C31
0431C32	for	0432C32
0431C33	for	0432C33
0431C34	for	0432C34
0431C35	for	0432C35
0431D11	for	0432D11
0431D12	for	0432D12
0431D13	for	0432D13
0431D14	for	0432D14
0431D15	for	0432D15
0431D21	for	0432D21
0431D22	for	0432D22
0431D23	for	0432D23
0431D24	for	0432D24
0431D25	for	0432D25
0431D31	for	0432D31
0431D32	for	0432D32
0431D33	for	0432D33
0431D34	for	0432D34
0431D35	for	0432D35

Appendix C: Additions to MRPM Task Database: Interior Construction

Task code: 0511102

Component: Wood Stud Interior Partition

System: Interior Constr. Subsystem: Fixed Part.--
Drywall

Task Description: Repair wood stud interior fixed partition

Unit of Measure: Square Feet

Frequency of Occurrence: H: 1.00 A: 2.00 L: 3.00

Persons per Team: 1

Task Duration: 0.0024 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove damage (2%)	0.000767			
Repair partition (2%)	0.001040			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.001807	0.000542	0.002349
Material	Cost \$			0.000000
Equipment	Hours			0.002349

Task code: 0511104

Component: Wood Stud Interior Partition

System: Interior Constr. Subsystem: Fixed Part.--
Drywall

Task description: Remove wood stud interior fixed partition

Unit of measure: Square Feet

Frequency of occurrence: H: 10.00 A: 14.00 L: 25.00

Persons per team: 2

Task duration: 0.0299 hours

Once every (H, A, L) years

Trade: Carpentry

Task classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Demolish wood stud int. part.	0.038333			
Clean up	0.007667			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.046000	0.013800	0.059800
Material	Cost \$			0.000000
Equipment	Hours			0.029900

Task code: 0511105

Component: Wood Stud Interior Partition

System: Interior Constr.

Subsystem: Fixed Part.--

Drywall

Task description: Install new wood stud interior fixed partition

Unit of measure: Square Feet

Frequency of occurrence: H: 10.00 A: 14.00 L: 25.00

Persons per team: 2

Task duration: 0.0360 hours

Once every (H, A, L) years

Trade: Carpentry

Task classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Construct wood stud int. part.	0.052000	Wood stud wall 16" o.c.	1.000	1.0300
Clean up	0.003325			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.055325	0.016598	0.071923
Material	Cost \$			1.030000
Equipment	Hours			0.035961

Task code: 0511202

Component: Metal Stud Interior Partition

System: Interior Constr.

Subsystem: Fixed Part.--

Drywall

Task description: Repair metal stud interior fixed partition

Unit of measure: Square Feet

Frequency of occurrence: H: 1.00 A: 2.00 L: 3.00

Persons per team: 1

Task duration: 0.0022 hours

Once every (H, A, L) years

Trade: Carpentry

Task classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove damage (2%)	0.000767			
Repair partition (2%)	0.000920			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.001687	0.000506	0.002193
Material	Cost \$			0.000000
Equipment	Hours			0.002193

Task code: 0511204

Component: Metal Stud Interior Partition System: Interior Constr. Subsystem: Fixed Part.--
Drywall

Task description: Remove metal stud interior fixed partition

Unit of measure: Square Feet

Frequency of occurrence: H: 10.00 A: 14.00 L: 25.00

Persons per team: 2

Task duration: 0.0299 hours

Once every (H, A, L) years

Trade: Carpentry

Task classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Demolish metal stud int. part.	0.038333			
Clean up	0.007667			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.046000	0.013800	0.059800
Material	Cost \$			0.000000
Equipment	Hours			0.029900

Task code: 0511205

Component: Metal Stud Interior Partition System: Interior Constr. Subsystem: Fixed Part.--
Drywall

Task description: Install new metal stud interior fixed partition

Unit of measure: Square Feet

Frequency of occurrence: H: 10.00 A: 14.00 L: 25.00

Persons per team: 2

Task duration: 0.0318 hours

Once every (H, A, L) years

Trade: Carpentry

Task classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Construct metal stud int. part.	0.046000	metal stud wall 16" o.c.	1.000	0.9100
Clean up	0.002941			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.048941	0.014682	0.063624
Material	Cost \$			0.910000
Equipment	Hours			0.031812

Task code: 0521202

Component: Wire Mesh Partition

System: Interior Partition

Subsystem: Movable Part.
--Metal

Task description: Repair wire mesh movable interior partition

Unit of measure: Square Feet

Frequency of occurrence: H: 5.00 A: 8.00 L: 12.00

Persons per team: 1

Task duration: 0.0011 hours

Once every (H, A, L) years

Trade: Carpentry

Task classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Repair fasteners & realign	0.000200			
Repair wire mesh surface	0.000653			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.000853	0.000256	0.001108
Material	Cost \$			0.000000
Equipment	Hours			0.001108

Task code: 0521205

Component: Wire Mesh Partition

System: Interior Partition

Subsystem: Movable Part.
--Metal

Task description: Replace wire mesh movable interior partition

Unit of measure: Square Feet

Frequency of occurrence: H: 35.00 A: 40.00 L: 45.00

Persons per team: 2

Task duration: 0.0944 hours

Once every (H, A, L) years

Trade: Carpentry

Task classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove & reinstall partition	0.041750	Wire mesh partition	1.000	2.7500
Clean area	0.103500			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.145250	0.043575	0.188825
Material	Cost \$			2.750000
Equipment	Hours			0.094413

Task code: 0522202

Component: Folding Accordion Partition System: Interior Partition Subsystem: Movable Part.
--Fabric

Task description: Repair folding accordion movable interior partition

Unit of measure: Square Feet

Frequency of occurrence: H: 5.00 A: 8.00 L: 12.00

Persons per team: 1

Task duration: 0.0030 hours

Once every (H, A, L) years

Trade: Carpentry

Task classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Repair fasteners	0.000200	Vinyl	0.020	0.3900
Repair fabric surface	0.002130			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.002330	0.000699	0.003029
Material	Cost \$			0.007800
Equipment	Hours			0.003029

Task code: 0522205

Component: Folding Accordion Partition System: Interior Partition Subsystem: Movable Part.
--Fabric

Task description: Replace folding accordion partition

Unit of measure: Square Feet

Frequency of occurrence: H: 35.00 A: 40.00 L: 45.00

Persons per team: 2

Task duration: 0.1264 hours

Once every (H, A, L) years

Trade: Carpentry

Task classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove & reinstall partition	0.091000	vinyl-clad partition	1.000	10.8000
Clean area	0.103500			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.194500	0.058350	0.252850
Material	Cost \$			10.800000
Equipment	Hours			0.126425

Task code: 0522302

Component: Hospital Cubicle

System: Interior Partition

Subsystem: Movable Part.
--Fabric

Task description: Repair hospital cubicle curtain partition

Unit of measure: Square Feet

Frequency of occurrence: H: 1.00 A: 2.00 L: 3.00

Persons per team: 1

Task duration: 0.0006 hours

Once every (H, A, L) years

Trade: Carpentry

Task classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Repair fasteners & realign	0.000200			
Repair fabric surface	0.000260			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.000460	0.000138	0.000598
Material	Cost \$			0.000000
Equipment	Hours			0.000598

Task code: 0522305

Component: Hospital Partition

System: Interior Partition

Subsystem: Movable Part.
--Fabric

Task description: Replace hospital cubicle curtain partition

Unit of measure: Square Feet

Frequency of occurrence: H: 5.00 A: 8.00 L: 12.00

Persons per team: 2

Task duration: 0.0161 hours

Once every (H, A, L) years

Trade: Carpentry

Task classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove & reinstall partition		Hospital Partition	1.000	00.7667
and track	0.011108	Ceiling track	0.100	32.5000
Clean area	0.013607			

NOTE: Ceiling height = 10'-0"; ceiling track
length corresponds to 10 sq. ft. of curtain

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.024714	0.007414	0.032129
Material	Cost \$			4.016700
Equipment	Hours			0.016064

Task code: 0513102

Component: Toilet Partition

System: Interior construction

Subsystem: Fixed Part.--
Specialty

Task description: Repair toilet partition

Unit of measure: Square Feet

Frequency of occurrence: H: 10.00 A: 14.00 L: 20.00

Persons per team: 1

Task duration: 0.0004 hours

Once every (H, A, L) years

Trade: Carpentry

Task classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Repair toilet partition (2%)	0.000338			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.000338	0.000102	0.000440
Material	Cost \$			0.000000
Equipment	Hours			0.000440

Task code: 0513104

Component: Toilet Partition

System: Interior constr.

Subsystem: Fixed Part.--
Specialty

Task description: Refinish toilet partition

Unit of measure: Square Feet

Frequency of occurrence: H: 3.00 A: 4.00 L: 5.00

Persons per team: 1

Task duration: 0.0259 hours

Once every (H, A, L) years

Trade: Painting

Task classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Prepare surface	0.015000	Paint	1.000	0.6540
Refinish partition surface	0.004916			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.019916	0.005975	0.025891
Material	Cost \$			0.654000
Equipment	Hours			0.025891

Task code: 0513105

Component: Toilet Partition

System: Interior constr.

Subsystem: Fixed Part.--
Specialty

Task description: Replace toilet partition

Unit of measure: Square Feet

Frequency of occurrence: H: 35.00 A: 40.00 L: 45.00

Persons per team: 2

Task duration: 0.1197 hours

Once every (H, A, L) years

Trade: Carpentry

Task classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove partition	0.016921	Toilet partition	1.000	14.1631
Install partition	0.063795			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.184216	0.055265	0.239481
Material	Cost \$			14.163090
Equipment	Hours			0.016141

Task code: 0513106

Component: Toilet Partition

System: Interior constr.

Subsystem: Fixed Part.--
Specialty

Task description: Paint replaced toilet partition

Unit of measure: Square Feet

Frequency of occurrence: H: 35.00 A: 40.00 L: 45.00

Persons per team: 1

Task duration: 0.0161 hours

Once every (H, A, L) years

Trade: Painting

Task classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Prepare surface	0.007500	Paint	1.000	0.6540
Paint new partition	0.004916			
Clean area	0.103500			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.012416	0.003725	0.016141
Material	Cost \$			0.654000
Equipment	Hours			0.016141

Task code: 0513202

Component: Shower Compartment System: Interior constr. Subsystem: Fixed Part.--
Specialty

Task description: Repair fiberglass shower compartment partition

Unit of measure: Count Frequency of occurrence: H: 4.00 A: 5.00 L: 6.00

Persons per team: 1 Task duration: 0.1109 hours Once every (H, A, L) years

Trade: Carpentry Task classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Repair fiberglass partition (2%)	0.085344			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.085344	0.025603	0.110947
Material	Cost \$			0.000000
Equipment	Hours			0.110947

Task code: 0513205

Component: Shower Compartment System: Interior constr. Subsystem: Fixed Part.--
Specialty

Task description: Replace fiberglass shower compartment partition

Unit of measure: Count Frequency of occurrence: H: 20.00 A: 25.00 L: 30.00

Persons per team: 2 Task duration: 3.0048 hours Once every (H, A, L) years

Trade: Carpentry Task classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove & reinstall partition	3.911600	Shower compartment	1.000	440.00
Clean up	0.711200			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	4.622800	1.386840	6.009640
Material	Cost \$			440.000000
Equipment	Hours			3.004820

Task code: 0531152

Component: Steel (Painted) Fire Door System: Interior doors Subsystem: Metal doors

Task description: Repair steel (painted) fire door

Unit of measure: Count Frequency of occurrence: H: 10.00 A: 14.00 L: 20.00

Persons per team: 1 Task duration: 1.0680 hours Once every (H, A, L) years

Trade: Carpentry Task classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove & reinstall seal/lockset	0.722520			
Oil/lubricate hinges	0.049500			
Oil/lubricate door closer	0.049500			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.821520	0.246456	1.067976
Material	Cost \$			0.000000
Equipment	Hours			1.067976

Task code: 0531154

Component: Steel (Painted) Fire Door System: Interior doors Subsystem: Metal doors

Task description: Repaint steel (painted) fire door

Unit of measure: Count Frequency of occurrence: H: 4.00 A: 6.00 L: 8.00

Persons per team: 1 Task duration: 0.3135 hours Once every (H, A, L) years

Trade: Painting Task classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Prepare surface	0.015000	Paint	46 s. f.	0.6540
Paint steel fire door	0.226136			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.241136	0.072341	0.313477
Material	Cost \$			30.084000
Equipment	Hours			0.313477

Task code: 0531155

Component: Steel (Painted) Fire Door System: Interior doors Subsystem: Metal doors

Task description: Replace steel (painted) fire door

Unit of measure: Count

Frequency of occurrence: H: 25.00 A: 40.00 L: 50.00

Persons per team: 1

Task duration: 4.3433 hours

Once every (H, A, L) years

Trade: Carpentry

Task classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove steel door and frame	1.400000	Steel frame	1.000	70.00
Install new steel fire door	1.941000	Steel fire door	1.000	189.00

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	3.341000	1.002300	4.343300
Material	Cost \$			259.000000
Equipment	Hours			4.343300

Task code: 0531156

Component: Steel (Painted) Fire Door System: Interior doors Subsystem: Metal doors

Task description: Paint replaced steel (painted) fire door

Unit of measure: Count

Frequency of occurrence: H: 25.00 A: 40.00 L: 50.00

Persons per team: 1

Task duration: .3037 hours

Once every (H, A, L) years

Trade: Painting

Task classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Prepare surface	0.007500	Paint	46 s. f.	0.6540
Paint steel fire door	0.226136			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.233636	0.070091	0.303727
Material	Cost \$			30.084000
Equipment	Hours			0.303727

Task code: 0533132

Component: Wood Pocket Door

System: Interior doors

Subsystem: Wood doors

Task Description: repair wooden pocket door, assembly

Unit of Measure: Count

Frequency of Occurrence: H: 12.00 A: 15.00 L: 20.00

Persons per Team: 1

Task Duration: 3.1497 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Dismantle pocket door assembly	1.073324	Pocket Door Frame	1.000	67.50
Lubricate hardware	0.049500			
Install new pocket door frame	1.300000			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	2.422824	0.726847	3.149671
Material	Cost \$			67.500000
Equipment	Hours			3.149671

Task code: 0533134

Component: Wood Pocket Door

System: Interior doors

Subsystem: Wood doors

Task Description: Refinish wooden pocket door

Unit of Measure: Count

Frequency of Occurrence: H: 3.00 A: 4.00 L: 5.00

Persons per Team: 1

Task Duration: 0.6779 hours

Once every (H, A, L) years

Trade: Painting

Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Prepare surface	0.315000	Paint	42 s. f.	0.6540
Paint wooden door	0.206472			

NOTE: Quantity of paint = 2 sides @ 21 s. f.
apiece, no edges (no door dismantling)

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.521472	0.156442	0.677914
Material	Cost \$			27.468000
Equipment	Hours			0.677914

Task code: 0533135

Component: Wood Pocket Door

System: Interior doors

Subsystem: Wood doors

Task Description: Replace wooden pocket door assembly

Unit of Measure: Count

Frequency of Occurrence: H: 20.00 A: 25.00 L: 30.00

Persons per Team: 1

Task Duration: 4.5083 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Dismantle pocket door assembly	1.073324	Pocket Door Frame	1.000	67.50
Install pocket door & frame	2.394600	Wooden Door	1.000	150.00
		Pocket Door Hardware	1.000	99.00

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	3.467924	1.040377	4.508301
Material	Cost \$			316.500000
Equipment	Hours			4.508301

Task code: 0533136

Component: Wood Pocket Door

System: Interior doors

Subsystem: Wood doors

Task Description: Finish replaced wooden pocket door

Unit of Measure: Count

Frequency of Occurrence: H: 20.00 A: 25.00 L: 30.00

Persons per Team: 1

Task Duration: 0.4732 hours

Once every (H, A, L) years

Trade: Painting

Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Prepare surface	0.157500	Paint	46 s. f.	0.6540
Paint wooden door	1.333333			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.363972	0.109192	0.473164
Material	Cost \$			30.084000
Equipment	Hours			0.473164

Task code: 0533242

Component: Wood (Painted) Fire Door System: Interior doors Subsystem: Wood doors

Task Description: Repair wood (painted) fire door

Unit of Measure: Count Frequency of Occurrence: H: 10.00 A: 14.00 L: 20.00

Persons per Team: 1 Task Duration: 1.0680 hours Once every (H, A, L) years

Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove & reinstall seal/lockset	0.722520			
Oil/lubricate hinges	0.049500			
Oil/lubricate door closer	0.049500			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.821520	0.246456	1.067976
Material	Cost \$			0.000000
Equipment	Hours			1.067976

Task code: 0533244

Component: Wood (Painted) Fire Door System: Interior doors Subsystem: Wood doors

Task Description: Refinish wood (painted) fire door

Unit of Measure: Count Frequency of Occurrence: H: 3.00 A: 4.00 L: 5.00

Persons per Team: 1 Task Duration: 0.6779 hours Once every (H, A, L) years

Trade: Painting Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Prepare surface	0.315000	Paint	46 s. f.	0.6540
Paint wooden door	0.206472			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.521472	0.156442	0.677914
Material	Cost \$			30.084000
Equipment	Hours			0.677914

Task code: 0533245

Component: Wood (Painted) Fire Door System: Interior doors Subsystem: Wood doors

Task Description: Replace wood (painted) fire door

Unit of Measure: Count

Frequency of Occurrence: H: 30.00 A: 40.00 L: 50.00

Persons per Team: 1

Task Duration: 3.8536 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove wood fire door & frame	0.900000	Wooden Door Frame	1.000	67.32
Install new wooden fire door	2.064333	Wooden Fire Door	1.000	178.00

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	2.964333	0.889300	3.853633
Material	Cost \$			245.320000
Equipment	Hours			3.853633

Task code: 0533246

Component: Wood (Painted) Fire Door System: Interior doors Subsystem: Wood doors

Task Description: Finish replaced wood (painted) fire door

Unit of Measure: Count

Frequency of Occurrence: H: 30.00 A: 40.00 L: 50.00

Persons per Team: 1

Task Duration: 1.9381 hours

Once every (H, A, L) years

Trade: Painting

Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Prepare surface	0.157500	Paint	46 s. f.	0.6540
Paint wooden door	1.333333			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	1.490833	0.447250	1.938083
Material	Cost \$			30.084000
Equipment	Hours			1.938083

Task code: 0534342

Component: Shower & Tub Door

System: Interior doors

Subsystem: Special doors

Task Description: Repair shower & tub door

Unit of Measure: Count

Frequency of Occurrence: H: 4.00 A: 5.00 L: 6.00

Persons per Team: 1

Task Duration: 0.4668 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove & reinstall seal	0.243038	Track/wheels	0.050	162.00
Oil track/wheels	0.049500			
Replace door track/wheels	0.066564			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.359102	0.107731	0.466833
Material	Cost \$			8.100000
Equipment	Hours			0.466833

Task code: 0534345

Component: Shower & Tub Door

System: Interior doors

Subsystem: Special doors

Task Description: Replace shower & tub door

Unit of Measure: Count

Frequency of Occurrence: H: 12.00 A: 15.00 L: 20.00

Persons per Team: 2

Task Duration: 1.2711 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove & replace shower door	1.777778	Sliding shower door	1.000	162.00
remove & reinstall track/closer	0.177778			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	1.955555	0.586667	2.542222
Material	Cost \$			162.000000
Equipment	Hours			1.271111

Task code: 0534352

Component: Steel Fire-Rated Access Door System: Interior doors Subsystem: Special doors

Task Description: Repair steel fire-rated access door

Unit of Measure: Count

Frequency of Occurrence: H: 10.00 A: 14.00 L: 20.00

Persons per Team: 1

Task Duration: 0.3803 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove & reinstall seal/lockset	0.242038	Hardware	0.250	325.00
Oil/lubricate hinges	0.049500			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.292538	0.087761	0.380299
Material	Cost \$			81.250000
Equipment	Hours			0.380299

Task code: 0534355

Component: Steel Fire-Rated Access Door System: Interior doors Subsystem: Special doors

Task Description: Replace steel fire-rated access door

Unit of Measure: Count

Frequency of Occurrence: H: 25.00 A: 40.00 L: 50.00

Persons per Team: 2

Task Duration: 0.9533 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove & replace access door	1.333333	Steel Access Door	1.000	325.00
Remove & reinstall track	0.133333			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	1.466667	0.440000	1.906667
Material	Cost \$			325.000000
Equipment	Hours			0.953333

Task code: 0561215

Component: Metal Corner Guard System: Interior ornaments Subsystem: Interior trim

Task Description: Replace metal corner guard

Unit of Measure: Lineal Feet Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00

Persons per Team: 1 Task Duration: 0.2262 hours Once every (H, A, L) years

Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove corner guard	0.058000	Steel Corner Guard	1.000	6.3500
Install new corner guard	0.116000			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.174000	0.052200	0.226200
Material	Cost \$			6.350000
Equipment	Hours			0.226200

Task code: 0561225

Component: Metal Wallguard System: Interior ornaments Subsystem: Interior trim

Task Description: Replace metal wallguard

Unit of Measure: Lineal Feet Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00

Persons per Team: 1 Task Duration: 0.1950 hours Once every (H, A, L) years

Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove wallguard	0.050000	Wallguard w/flat rail	1.000	14.7500
Install new wallguard	0.100000			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.150000	0.045000	0.195000
Material	Cost \$			14.750000
Equipment	Hours			0.195000

Task code: 0562102

Component: Tapered Wood Column System: Interior ornaments Subsystem: Ornamental structure

Task Description: Repair tapered wooden interior decorative column

Unit of Measure: Vertical Lineal Feet Frequency of Occurrence: H: 20.00 A: 25.00 L: 30.00

Persons per Team: 1 Task Duration: 0.5807 hours Once every (H, A, L) years

Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove damage	0.146669	Patching Material	0.020	3.5500
Repair ornamental column	0.300000			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.446669	0.134001	0.580670
Material	Cost \$			0.071000
Equipment	Hours			0.580670

Task code: 0562104

Component: Tapered Wooden Column System: Interior ornaments Subsystem: Ornamental structure

Task Description: Refinish tapered wooden interior decorative column

Unit of Measure: Vertical Lineal Feet Frequency of Occurrence: H: 5.00 A: 8.00 L: 12.00

Persons per Team: 1 Task Duration: 0.4362 hours Once every (H, A, L) years

Trade: Painting Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Prepare surface	0.071500	Paint	0.020	1.0900
Wash/dry surface	0.024750			
Refinish surface	0.239250			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.335500	0.100650	0.436150
Material	Cost \$			0.021800
Equipment	Hours			0.436150

Task code: 0562105

Component: Tapered Wooden Column System: Interior ornaments Subsystem: Ornamental structure

Task Description: Replace tapered wooden interior decorative column

Unit of Measure: Vertical Lineal Feet Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00

Persons per Team: 2 Task Duration: 0.5200 hours Once every (H, A, L) years

Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove existing column	0.480000	Hemlock Column (18")	1.000	76.0000
Replace column	0.320000			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.800000	0.240000	1.040000
Material	Cost \$			76.000000
Equipment	Hours			0.520000

Task code: 0562106

Component: Tapered Wooden Column System: Interior ornaments Subsystem: Ornamental structure

Task Description: Finish replaced tapered wooden interior decorative column

Unit of Measure: Vertical Lineal Feet Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00

Persons per Team: 1 Task Duration: 0.3897 hours Once every (H, A, L) years

Trade: Painting Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Prepare surface	0.035750	Paint	1.000	1.0900
Wash/dry surface	0.024750			
Refinish surface	0.239250			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.299750	0.089925	0.389675
Material	Cost \$			1.090000
Equipment	Hours			0.389675

Task code: 0562112

Component: Decorative Wooden Beam System: Interior ornaments Subsystem: Ornamental structure

Task Description: Repair Decorative Wooden Interior Beam

Unit of Measure: Lineal Feet Frequency of Occurrence: H: 20.00 A: 25.00 L: 30.00

Persons per Team: 1 Task Duration: 0.0039 hours Once every (H, A, L) years

Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove damage	0.001000	Patching Material	0.020	1.0900
Repair damage	0.002000			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.003000	0.000900	0.003900
Material	Cost \$			0.071000
Equipment	Hours			0.003900

Task code: 0562114

Component: Decorative Wooden Beam System: Interior ornaments Subsystem: Ornamental structure

Task Description: Refinish decorative wooden interior beam

Unit of Measure: Lineal Feet Frequency of Occurrence: H: 5.00 A: 10.00 L: 15.00

Persons per Team: 1 Task Duration: 0.4162 hours Once every (H, A, L) years

Trade: Painting Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Prepare surface	0.071500	Paint	0.020	1.0900
Wash/dry surface	0.002250			
Refinish surface	0.239250			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.320175	0.096053	0.416228
Material	Cost \$			0.021800
Equipment	Hours			0.416228

Task code: 0562115

Component: Decorative Wooden Beam System: Interior ornaments Subsystem: Ornamental structure

Task Description: Replace decorative wooden interior beam

Unit of Measure: Lineal Feet Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00

Persons per Team: 2 Task Duration: 0.0975 hours Once every (H, A, L) years

Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove non-load bearing beam	0.050000	Wooden Beam	1.000	4.2500
Replace non-load bearing beam	0.100000			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.150000	0.045000	0.195000
Material	Cost \$			4.250000
Equipment	Hours			0.097500

Task code: 0562116

Component: Decorative Wooden Beam System: Interior ornaments Subsystem: Ornamental structure

Task Description: Finish replaced decorative wooden interior beam

Unit of Measure: Lineal Feet Frequency of Occurrence: H: 70.00 A: 80.00 L: 90.00

Persons per Team: 1 Task Duration: 0.3897 hours Once every (H, A, L) years

Trade: Painting Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Prepare surface	0.035750	Paint	1.000	1.0900
Wash/dry surface	0.024750			
Refinish surface	0.239250			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.229750	0.089925	0.389675
Material	Cost \$			1.090000
Equipment	Hours			0.389675

Task code: 0571112

Component: Wooden Baluster

System: Interior stairs

Subsystem: Railings

Task Description: Repair wooden baluster

Unit of Measure: Count

Frequency of Occurrence: H: 2.00 A: 3.00 L: 4.00

Persons per Team: 1

Task Duration: 0.0149 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove damage	0.005720	Patching Material	0.020	3.5500
Repair damage	0.005720			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.011440	0.003432	0.014872
Material	Cost \$			0.071000
Equipment	Hours			0.014872

Task code: 0571114

Component: Wooden Baluster

System: Interior stairs

Subsystem: Railings

Task Description: Refinish wooden baluster

Unit of Measure: Count

Frequency of Occurrence: H: 5.00 A: 7.00 L: 10.00

Persons per Team: 1

Task Duration: 0.0397 hours

Once every (H, A, L) years

Trade: Painting

Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Prepare surface	0.071500	Paint	0.020	0.8175
Wash/dry surface	0.002250			
Refinish surface	0.021750			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.030500	0.009150	0.039650
Material	Cost \$			0.001635
Equipment	Hours			0.039650

Task code: 0571115

Component: Wooden Baluster

System: Interior stairs

Subsystem: Railings

Task Description: Replace wooden baluster

Unit of Measure: Count

Frequency of Occurrence: H: 8.00 A: 10.00 L: 12.00

Persons per Team: 1

Task Duration: 0.7436 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove baluster	0.286000	Wooden baluster	1.000	5.75
Replace baluster	0.286000			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.572000	0.171600	0.743600
Material	Cost \$			5.750000
Equipment	Hours			0.743600

Task code: 0571116

Component: Wooden Baluster

System: Interior stairs

Subsystem: Railings

Task Description: Finish replaced wooden baluster

Unit of Measure: Count

Frequency of Occurrence: H: 8.00 A: 10.00 L: 12.00

Persons per Team: 1

Task Duration: 0.0354 hours

Once every (H, A, L) years

Trade: Painting

Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Prepare surface	0.003250	Paint	1.000	0.8175
Wash/dry surface	0.002250			
Refinish surface	0.021750			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.027250	0.008175	0.035425
Material	Cost \$			0.817500
Equipment	Hours			0.035425

Task code: 0571132

Component: Wooden Newel

System: Interior stairs

Subsystem: Railings

Task Description: Repair Wooden Newel

Unit of Measure: Count

Frequency of Occurrence: H: 8.00 A: 10.00 L: 12.00

Persons per Team: 1

Task Duration: 0.0693 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove damage	0.026667	Patching Material	0.020	3.5500
Repair damage	0.026667			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.053333	0.016000	0.069333
Material	Cost \$			0.071000
Equipment	Hours			0.069333

Task code: 0571134

Component: Wooden Newel

System: Interior stairs

Subsystem: Railings

Task Description: Refinish Wooden Newel

Unit of Measure: Count

Frequency of Occurrence: H: 5.00 A: 7.00 L: 10.00

Persons per Team: 1

Task Duration: 0.0793 hours

Once every (H, A, L) years

Trade: Painting

Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Prepare surface	0.006500	Paint	0.020	0.1635
Wash/dry surface	0.004500			
Refinish surface	0.043500			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.061000	0.018300	0.079300
Material	Cost \$			0.003270
Equipment	Hours			0.079300

Task code: 0571135

Component: Wooden Newel

System: Interior stairs

Subsystem: Railings

Task Description: Replace wooden newel

Unit of Measure: Count

Frequency of Occurrence: H: 99.00 A: 100.00 L: 101.00

Persons per Team: 2

Task Duration: 1.7333 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove newel	1.333333	Wooden Newel (3-1/4")	1.000	189.00
Replace newel	1.333333			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	2.666667	0.800000	3.466667
Material	Cost \$			189.000000
Equipment	Hours			1.733333

Task code: 0571136

Component: Wooden Newel

System: Interior stairs

Subsystem: Railings

Task Description: Finish Replaced Wooden Newel

Unit of Measure: Count

Frequency of Occurrence: H: 99.00 A: 100.00 L: 101.00

Persons per Team: 1

Task Duration: 0.0709 hours

Once every (H, A, L) years

Trade: Painting

Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Prepare surface	0.006500	Paint	1.000	0.1635
Wash/dry surface	0.004500			
Refinish surface	0.043500			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.054500	0.016350	0.070850
Material	Cost \$			0.163500
Equipment	Hours			0.070850

Task code: 0626211

Component: Lightweight Metal Grating System: Floor finishes Subsystem: Metal

Task Description: Repair lightweight metal grating floor finish

Unit of Measure: Square Feet

Frequency of Occurrence: H: 8.00 A: 10.00 L: 12.00

Persons per Team: 1

Task Duration: 0.0017 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Repair damage (2%)	0.001280			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.001280	0.000384	0.001664
Material	Cost \$			0.000000
Equipment	Hours			0.001664

Task code: 0626212

Component: Lightweight Metal Grating System: Floor finishes Subsystem: Metal

Task Description: Replace lightweight metal grating floor finish

Unit of Measure: Square Feet

Frequency of Occurrence: H: 25.00 A: 30.00 L: 35.00

Persons per Team: 2

Task Duration: 0.0832 hours

Once every (H, A, L) years

Trade: Carpentry

Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hours	Description	Quantity	Unit \$
Remove lightweight grating	0.064000	Fiberglass Grating	1.000	15.0000
Install lightweight grating	0.064000			

Summary

Resources	UOM	Direct	Indirect	Total
Labor	Hours	0.128000	0.038400	0.166400
Material	Cost \$			15.000000
Equipment	Hours			0.083200

Task code: 0587105

Component: Metal kick plate System: Interior hardware Subsystem: Kick plate
 Task Description: Replace metal kick plate
 Unit of Measure: Count Frequency of Occurrence: H: 15.00 A: 20.00 L: 25.00
 Persons per Team: 1 Task Duration: 1.0394 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Remove kick plate	0.266500	st. steel kick plate	1	22.5
Install new kick plate	0.533000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.799500	0.239850	1.039350
Material Cost \$			22.500000
Equipment Hours			1.039350

Task code: 0588105

Component: Wall bumper door stop System: Interior hardware Subsystem: Door stop
 Task Description: Replace wall bumper door stop
 Unit of Measure: Count Frequency of Occurrence: H: 7.50 A: 10.00 L: 12.50
 Persons per Team: 1 Task Duration: 0.6500 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Remove wall bumper door stop	0.166667	Wall bumper door stop	1	4.50
Install new door stop	0.333333			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.500000	0.150000	0.650000
Material Cost \$			4.500000
Equipment Hours			0.650000

Task code: 0589105

Component: floor check System: Interior hardware Subsystem: Floor check
 Task Description: Replace single-acting floor checks
 Unit of Measure: Count Frequency of Occurrence: H: 25.00 A: 30.00 L: 40.00
 Persons per Team: 1 Task Duration: 6.2400 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Remove floor check	1.600000	single acting floor check	1	360.0
Install new floor check	3.200000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	4.800000	1.440000	6.240000
Material Cost \$			360.000000
Equipment Hours			6.240000

Task code: 0622501

Component: Slate flooring System: Floor finishes Subsystem: Masonry & Tile
 Task Description: Repair slate flooring finish
 Unit of Measure: SF Frequency of Occurrence: H: 7.00 A: 10.00 L: 13.00
 Persons per Team: 1 Task Duration: 0.0040 hours Once every (H, A, L) years
 Trade: Masonry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
RegROUT state (2%)	0.003040	Grout	0.02	

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.003040	0.000912	0.003952
Material Cost \$			
Equipment Hours			0.003952

Task code: 0622502

Component: Slate flooring System: Floor finishes Subsystem: Masonry & Tile
 Task Description: Replace slate flooring finish
 Unit of Measure: SF Frequency of Occurrence: H: 25.00 A: 50.00 L: 70.00
 Persons per Team: 2 Task Duration: 0.1320 hours Once every (H, A, L) years
 Trade: Masonry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Remove damaged state flooring	0.027000	state flooring	1	3.68
Prepare mortar	0.024092			
Replace state flooring	0.152000			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.203092	0.060928	0.264020
Material Cost \$			3.680000
Equipment Hours			0.132010

Task code: 0629111

Component: Carpet tile System: Floor finishes Subsystem: Special surfaces
 Task Description: Repair carpet tile flooring finish
 Unit of Measure: SF Frequency of Occurrence: H: 3.50 A: 4.00 L: 4.50
 Persons per Team: 1 Task Duration: 0.0003 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 0

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Repair damage (2%)	0.000222			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.000222	0.000067	0.000289
Material Cost \$			
Equipment Hours			0.000289

Task code: 0629112

Component: Carpet tile System: Floor finishes Subsystem: Special surfaces
 Task Description: Replace carpet tile floor finish
 Unit of Measure: SF Frequency of Occurrence: H: 6.50 A: 8.00 L: 9.50
 Persons per Team: 2 Task Duration: 0.0124 hours Once every (H, A, L) years
 Trade: Carpentry Task Classification: 1

Labor Resources		Material Resources		
Subtask	Labor Hrs	Description	Quantity	Unit cost
Remove damaged carpet tile	0.008000	carpet tile	1	2.8889
Replace carpet tile flooring	0.011111			

Summary

Resources UOM	Direct	Indirect	Total
Labor Hours	0.019111	0.005733	0.024844
Material Cost \$			2.888880
Equipment Hours			0.012422

USACERL DISTRIBUTION

Chief of Engineers

ATTN: CEHEC-IM-LH (2)

ATTN: CEHEC-IM-LP (2)

ATTN: CECC-R

ATTN: CEMP-EC

ATTN: CERD-L

USACE, Huntsville Division (4)

ATTN: CEHND-ED-ES 35816-1822

Defense Tech Info Center 22304

ATTN: DITC-O (2)